DOCUMENT RESUME

ED 143 807 CE 012 143

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TITLE Self-Instructional Unit on Conducting Task Surveys for Vocational Curriculum Development.
INSTITUTION Ohio State Univ., Columbus. Trade and Industrial Education Instructional Materials Lab.
PUB DATE Jun 75
NOTE 177p.

EDRS PRICE MF-$0.83 HC-$10.03 Plus Postage.
DESCRIPTORS Administrator Education; Autoinstructional Aids; Curriculum Development; Data Collection; *Guidelines; Inservice Education; Learning Modules; *Occupational Surveys; Post Secondary Education; *Research Methodology; Sampling; Statistical Analysis; Statistical Data; *Task Analysis; Teacher Education Curriculum; Vocational Education

ABSTRACT

Ten modules which present specific instructions for conducting a task survey are provided in this manual for vocational educators, supervisors, and directors. Each module contains a short descriptive paragraph of the contents of each module, a performance objective, readings, exercise activities, and feedback for those activities. The modules are (1) rationale for use of task surveys; (2) developing a task list; (3) determining relevant questions; (4) identifying the population; (5) selecting the sample size; (6) selecting sampling methods; (7) developing the survey packet; (8) distributing and collecting the survey packet; (9) calculating summary statistics; and (10) interpreting the data. Two task survey reports containing example procedures and data are appended, along with an evaluation sheet for synthesizing the strategies and facilitating implementation. (BL)

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SELF-INSTRUCTIONAL UNIT ON CONDUCTING TASK SURVEYS FOR VOCATIONAL CURRICULUM DEVELOPMENT

by

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CE 012 143

T & I Instructional Materials Lab
The Ohio State University
Columbus, Ohio

June 1975

INTRODUCTION

The following unit was developed in draft form for use in a workshop on Instructional Systems Design conducted by Tom L. Hindes, I.M.L. Director, and William L. Ashley, Project Coordinator. Thirty-six Ohio vocational educators, supervisors, and directors attended the workshop from June 16 through June 20, 1975. The purpose of the workshop was to present contemporary curriculum techniques for developing, implementing and managing instructional programs. Conducting a task survey was one of those techniques. The workshop participants worked through the unit and provided feedback for revision.

The Unit contains ten modules which present specific instructions on how to conduct a task survey plus two task survey reports containing example procedures and data. A task survey strategy evaluation sheet is appended to help synthesize the strategies presented and decide how they can be implemented.

CONTENTS

Each module listed below contins a short descriptive paragraph of the contents of each module, a performance objective, reading resources, exercise activities and feedback for those activities. Not everyone will want to master each module to the same degree of competency, but the unit provides experience in the whole task survey process.

Part A: Rational for Use of Task Surveys

Part B: Developing a Task List

Part C: Determining Relevant Questions

Part D: Identifying the Population

Part E: Selecting the Sample Size

Part F: Selecting Sampling Methods

Part G: Developing the Survey Packet

Part H: Distributing and Collecting the Survey Packet

Part I: Calculating Summary Statistics

Part J: Interpreting the Data

A Survey of Certified Dental Assistants. Final Report

A Survey of Medical Assistants and Physicians Who Employ Medical Assistants. Progress Report.

Task Survey Strategy Evaluation

TASK SURVEY

PART A

PART A: RATIONALE FOR USE OF TASK SURVEYS

This section is designed to give you an overview of the task survey process. It outlines the three phases of the process and the steps contained in each.

PERFORMANCE OBJECTIVE:

After reading the following section, the workshop participants will identify all the correct characteristics of task survey data.

RESOURCES:

Reading	pp. 1 - 2	"Rationale for Using Task Surveys"
	pp. 3 - 6	"Final Report on Vocational Education" Battelle Memorial Institute
Activity:	pg. 7	
Feedback:	pg. 8	

Rationale for Using Task Surveys

Information from many sources can be utilized to properly develop a program in vocational education that will prepare a student with satisfactory employment skills and knowledge for entry into a specified occupation. Common sources of information about an occupation are career handbooks, text books, trade journals, industrial publications, government publications, individuals with work experience in the occupation, advisory committees, employment statistics, and union or trade association contracts and bulletins. All of these sources can help educators to develop a clear picture of an occupation and the types of processes used, products produced and/or workers employed.

All of the above sources provide information of various types but some are not designed to primarily provide information for curriculum design and development. The occupational task survey technique produces curriculum data that is economical, reliable, quantifiable and valid. The data can be used directly in curriculum development decision making and course planning. Task survey data can identify the differences and similarities of jobs across a range of employment agencies and across various geographic areas. (Employment agencies as used here refers to the companies, business, industries and/or institutions which provide jobs and employ workers in any of the occupations you are surveying.)

Task survey information can identify the tasks most often performed, the numbers of workers performing different tasks, and the tasks most important for entry level and advanced positions. The task survey procedure involves three phases each containing a few simple and relatively inexpensive steps:

Phase I: Development of the Task Inventory

The first phase of the survey involves obtaining or developing a list of the tasks performed in the occupation, selecting the tasks to be used, and determining relevant questions to be asked in the task inventory. This phase can be shortened by using a task list already developed and available to the public.

Phase II: Acquisition of Survey Data

During the second phase the survey components are developed, the population to be surveyed is identified, sample size is determined, a representative sample of workers selected, the survey distributed and the responses collected.

Phase III: Treating the Data

After the responses have been collected the results are tabulated and compiled; appropriate statistics are performed, the data analyzed for significant numbers, percentages, trends, or other types of evidence

> related to the questions asked; the data interpreted; and conclusions are drawn which can be considered in selecting and designing curriculum for an instructional program.

Since much vocational curriculum is planned and developed by vocational instructors and supervisors the task survey provides direct support to their efforts. Sometimes in the curriculum development process there is a tendency to include content or skills which are not essential or which are more practical to learn on the job. Survey data can correct that tendency by providing a basis for identifying the content and skills which are actually used by incumbents in a given occupation. The practical question of "what are the entry level tasks" can be specifically answered by employers and workers. It is possible to identify critical competencies required to enable a new worker to be successful on the job. It is also possible to determine the exact tasks to be learned and then to indicate the degree to which each student learns them.

FINAL REPORT

on

VOCATIONAL EDUCATION

to

OHIO DEPARTMENT OF EDUCATION

October, 1969

BATTELLE MEMORIAL INSTITUTE
Columbus Laboratories
505 King Avenue
Columbus, Ohio 43201

"The following materials is a portion of the recommendations made to the State Department of Education in a state-wide study by the Battelle Memorial Institute, dated 1969."

Obtaining Employer and Job Requirement Information

The overall purpose of this step is to obtain information on tasks that need to be performed for a given job or occupation, and assess and define the skills, knowledge, and attitudes required to perform them. For a given job, what tasks and skills would employer's like the school to teach? What tasks and skills are required for successful job performance? These are the major questions here.

A major problem here for vocational education is keeping such information current, in view of rapid equipment and skill requirements change for many occupations. Another major problem is to obtain employer and job requirement information in an appropriate form, i.e., well-defined and specific task and skill information is needed, if it is to be useful for subsequent steps in program development. A third problem is to obtain comprehensive information, i.e., a description of required tasks and skills for a trade in the several establishments and work settings where the trade is practiced. Differences and commonalities can then be assessed.

The problem of updating job requirements information will be discussed later (see section on follow-up of graduates). The concern here is with obtaining such information initially, for a given job training program.

In general, current practices call for the use of advisory and/or craft committees to obtain employer and job requirement data. The activities of these committees could be valuably supplemented by a survey methodology, to obtain more comprehensive, specific, and well-defined task and skill requirement information.

Battelle is currently implementing and validating such a methodology on a research project with the U.S. Department of Labor and schools in the State of Michigan*.

The approach calls for defining and listing the tasks an individual performs on the job, and a grouping of these tasks into task classes. Tasks are defined at the level of detail required for subsequent development of a training program for the job. For each task, several items of information are obtained, as follows: (1) importance of the task for (a) hiring, (b) job success, and (c) promotion; (2) frequency of performance of the task; (3) to what extent the employer desires that the task be taught in the curriculum, if at all; and (4) level of performance required on the task. These sources of information are useful for curriculum design, including selection of aspects of the job to teach, if time/costs preclude the teaching of all job tasks.

The steps required of a local district to obtain such information can be briefly described as below:

(1) First, a comprehensive preliminary list of job tasks for each job in the curriculum would be developed. Teachers, or other experts, would develop this preliminary list, based on their expertise and any existing written curriculum materials.

(2) The second step would be to select establishments for each job and trade of concern. That is, establishments in the area would be selected where the job or jobs exist. Such selection would be based on a well-thought out sampling to obtain a representative group of establishments.

(3) The last step would be to conduct a mail survey of the establishments selected. The preliminary task list would be sent to appropriate personnel in the establishments, such as people actually working on the job, first line

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* Cress, Ronald J., "An Exploratory Study to Analyze New Skill Content in Selected Occupations in Michigan and the Mechanism for Its Translation into Vocational Education Curricula." Interim Report. August, 1969.

> supervisors, or any other type of person judged competent to give the information required. These people would then add relevant tasks, if necessary, to the preliminary task list, or remove irrelevant tasks. They would then provide information on importance of the task, frequency of performing the task, etc., as described above. They would also provide information on equipment, tools, materials, and instruments required in the performance of the tasks.

As pointed out previously, the above procedure is viewed as a supplement to advisory committees for reflecting employer skill needs, providing more specific and comprehensive information (across employer establishments) than can be obtained by a committee procedure. The procedure is also viewed as a supplement to periodic training of staff instructors by OJT or other means, to keep them updated in their job speciality, to insure relevant job training curricular objectives and content.

ACTIVITY: Check all the phrases that correctly identify the characteristic of task survey data.

Task survey data can:

a. ______provide information for curriculum design

b. ______replace recommendations by advisory committees

c. ______identify differences and similarities of jobs across a range of employment agencies and geographic areas

d. ______determine cost/effectiveness of programs

e. ______identify tasks most important for entry level and advanced positions

f. ______identify numbers of workers performing different tasks

g. ______specify skills to be taught

h. ______identify tasks most often performed

FEEDBACK:

The correct answers are a, c, e, f, and h.

You should not have checked b, d, or g. During all phases of the task survey process it is recommended that the advisory committee have input. The task survey data can tell you only about the tasks, not about the instructional program. The task survey data can only identify certain facts, not specify skills, knowledge or competencies that should be taught. Task survey data can provide a basis for identifying skills, knowledge or competencies through the task analysis procedure.

TASK SURVEY

PART B

PART B: DEVELOPING A TASK LIST

This section gives you a definition of a task, task list, and task inventory. It explains how to develop and edit task lists according to the set of standards provided.

PERFORMANCE OBJECTIVE:

After reading this section, the workshop participants will edit a list of task statements, identify all correctly written statements, rewrite poorly written statements and delete those statements that cannot be rewritten.

RESOURCES:

Reading: pg. 1 "Obtaining an Occupational Task List"
pp. 1-2 "Selecting the Tasks"
pp. 3-4 "Appendix B: Task Definition and Rules of Construction"

Activity: pg. 5

Feedback: pg. 6

Obtaining an Occupational Task List

A task list is a comprehensive list of statements which define actual units of work performed by incumbents in a specified occupation. Such lists describe what people do when carrying out their job responsibilities. The list may be compiled from a number of sources including job descriptions, training materials, worker interviews, observations, and simulations.

The task statements contained in a list should be written and edited according to a set of standards to maintain consistency in the level of specificity and style. The first draft, of the task list should be reviewed by a representative sample of workers and/or employers from the occupation. They should identify incorrect language and add any task statements that may be missing from the original list. The appropriate changes and additions are then made on the final draft of the task list.

The task lists contained in the analysis underwent the above procedures. The initial lists were developed from a review of training guides, curriculum materials, course outlines, and research documents. They were edited and reviewed by a small sample of workers. The re-edited list was then mailed as part of a survey to a representative sample of workers (40-50) employed in the occupation. These workers indicated how often they performed the tasks and added tasks they performed that were not included in the inventory.

Selecting the Tasks

The presurvey procedure involves selecting the tasks and relevant questions to be included in the task inventory. The task inventory is that part of the survey instrument that contains the task statements and the questions about each task. (See Figure 1.) The task statements are to be selected from the task list developed in the first step. The task statements should be reviewed to determine if the task statements as written meet the local needs. Some statements may be too general for identifying specific related skills or content and should be rewritten as several more specific task statements. The number of task statements in a task inventory may vary from 50 to 300 task statements depending on the scope of the occupation to be surveyed and the specificity of each statement. A lengthy inventory will discourage participation by respondents. A total of 200 to 300 task statements are suggested as approaching a maximum number to include.

An extensive list requires that specific task statements be selected for inclusion in the task inventory. A review of the statements contained in the task list may identify certain

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* See Appendix B for task definition and rules of construction

tasks which are not considered for instruction. The reasons for not including such tasks may be:

1. Lack of facilities or equipment for proper training
2. There is nothing about the task that requires training
3. Job training is a superior method to formal school for learning
4. The tasks are reserved for master craftsmen and will not be expected of entry level workers
5. Advanced license or certification is required before performance is allowed

Some tasks are so basic to an occupation that they will automatically be included in a course. Such tasks can be deleted if necessary to reduce the number of tasks on the list. Caution should be exercised in making arbitrary decisions to delete tasks from the list even though the reasons for doing so may seem valid. If the practice of predetermining the tasks to be or not be included in an inventory is overdone the main purpose of the task survey will be circumvented. A more appropriate approach is, (1) rewrite the task statements rather than delete them, or (2) develop and conduct two surveys with two separate groups of workers. Each group would respond to half the large task inventory. The results can be combined in the final analysis.

APPENDIX B: TASK DEFINITION AND RULES OF CONSTRUCTION

Definition:

A task is a logical and necessary unit of work in the performance of a duty.

Some properties of tasks:

1. A task has a definite beginning and end.
2. Tasks are made up of a series of worker activities that occur in close sequence.
3. A task includes a mixture of decisions, perceptions and/or physical activities required of one person.
4. A task involves peoples' interaction with equipment, other people, and/or data.

Standards for writing and/or editing task statements:

1. Clarity requires that a task statement identify without question the unit of work to be performed.

Rules:

Use wording that is easily understood.

Be precise so the statement means the same thing to all personnel.

Write separate, specific statements for each task.

Avoid combining vague items of skill, knowledge or responsibility.

2. Completeness requires that all necessary information be included in the statement so it may be fully understood across various work environments.

Rules:

Avoid the use of abbreviations. Spell out the term followed by the abbreviation.

Include the title or identification of special tools, forms or equipment when the task statement requires such specific items to be correctly understood. Use the general type of term when it is sufficient.

3. Conciseness requires that the task statement provide all necessary information in as few words as possible. They should be accurate and to the point.

Rules:

Task statements should be brief. Avoid using statements which are too broad or general in meaning.

Avoid use of vague words such as "check," "assist," and "use."

Begin the statements with a present-tense action word.

The subject "I" or "You" is understood but not written.

Identify the object on which the action is to be performed.

Use current occupational terminology.

4. Relevance requires that the task statement provide information which describes the direct action of the worker.

Rules:

Do not state the person's qualifications.

Do not include items on receiving instruction, unless actual work is performed.

Avoid including information about prior tasks whenever possible.

Do not use multiple verbs unless several actions are always done together.

ACTIVITY: Edit the following list of task statements according to the standards discussed in Appendix B. Check those statements that are correctly written. Rewrite those statements that are poorly written. Delete those statements that cannot be rewritten.

1. ______Type names and addresses for mailing lists
2. ______Remove addresses from mailing lists
3. ______Involved with determining problems
4. ______File address lists
5. ______Handle correspondence
6. ______Fill out 100W purchase order
7. ______Report various activities performed
8. ______Prepare cost estimates for O.J.T.
9. ______Erect temporary scaffolding
10. ______Write production reports
11. ______I perform all essential repairs
12. ______Proofread memos
13. ______Test circuits with multimeter
14. ______Learn the split-half trouble shooting techniques
15. ______Able to write correct objectives
16. ______Read disassembly procedures and disassemble internal valve
17. ______Adjust internal valves in fluid coupling
18. ______Type 60 words per minute with no errors
19. ______Replace main fuse in power console
20. ______Scheduling workshop sessions
21. ______Perform $\sqrt{x}$ function
22. ______Fill back orders
23. ______Report attendance figures
24. ______Tabulating survey data

FEEDBACK:

You should have checked: 1, 2, 4, 6, 9, 10, 12, 13, 17, 19, 22, 23,

You should have deleted: 3, 11, 14, 21.

Statement five does not specify what action is to be taken and therefore does not meet the standard for clarity. It can be rewritten as:

"Compose replies to correspondence" or "Open correspondence," etc.

Statement seven does not specify what activities should be reported and therefore does not meet the standard of completeness. It can be rewritten as:

"Fillout weekly report form"

Statement eight contains an undefined abbreviation and does not meet the standard of completeness. It can be rewritten as:

"Prepare cost estimates for on the job training"

Statement fifteen relates to abilities not to actual performance and does not meet the standard of relevance. It can be rewritten as:

"Write objectives for workshop (class, course, etc.)"

Statement sixteen includes non-essential information about a prior task and does not meet the standard of relevance. The first phrase can be deleted to leave it:

"Disassemble internal valve"

Statement eighteen relates to abilities not to actual performance and does not meet the standard of relevance. It can be rewritten as:

"Type business letters" or "Type manuscripts" etc.

Statement twenty begins with a gerund, not a present tense action verb and does not meet the standard of conciseness. It should be rewritten as:

"Schedule workshop sessions"

Statement twenty-four begins with a gerund, not a present tense action verb and does not meet the standard of conciseness. It should be rewritten as:

"Tabulate survey data"

TASK SURVEY

PART C

PART C: DETERMINING RELEVANT QUESTIONS

This section discusses some of the questions that can be asked on a task inventory and some of the techniques of selecting questions and devising rating scales.

PERFORMANCE OBJECTIVE:

After reading this section the workshop participants will identify essential criteria for developing questions and rating scales for task inventories, list the kinds of data that can be generated by different kinds of questions and give the questions a priority rating in a group discussion.

RESOURCES:

Reading: pg. 1 "Determining the Questions"

Activity: pg. 2

Feedback: pg. 3

Determining the Questions

Another decision in developing a task inventory is selecting the questions to be asked about each task. The data from these questions should aid directly in the design and development of a vocational course. A large number of questions about each task will discourage participation by respondents. Three questions are suggested as a maximum. To gather data for more than three questions develop two inventories with different questions on each. This approach is also used when surveying two different groups such as employers and employees. Ideally, the questions selected should provide the greatest amount of information and guidance for the least time spent on the part of the respondents.

Some questions that might be asked are:

How often is each task performed by a job incumbent?
How much time is spent performing each task?
How important is each task to the effective execution of the job?
How soon is task competence expected after job assignment?
Can essential training be adequately acquired on the job?
Is the task part of entry level jobs?

Other questions that are particular to local needs may be asked on the task inventory. The type of questions may vary depending on the group that is to respond such as employers, employees, or others.

An appropriate rating scale must be devised for each question. A rating scale of not less than five points and perhaps seven points when measuring such questions as importance or criticality figures is recommended. (See Figure 2.) Such a scale will give a greater amount of discrimination between tasks. Smaller scales (3 or 4 points) may be less effective because all responses may be at one extreme of the scale; such results will produce mean values for all tasks which are not significantly different from each other. Each point of the scale should be identified and explained carefully on the instruction sheet. Additional specific directions on how to mark the appropriate response should be clearly printed on each page of the inventory.

Task Inventory	Flexible	Average	Above Av.	Critical	Highly Critical
1.	1	2	3	4	5
2.	1	2	3	4	5

Figure 2

ACTIVITY:

1. Fill in the blanks of this summary paragrpah.

   There should be no more than __________ questions asked about each task on a task inventory. If different information is needed from different groups, use __________ inventories. Each question should have a rating scale of no less than __________ points. This gives a greater amount of __________ between tasks. Each point on the rating scale should be __________ on the instruction sheet.

2. A list of possible kinds of data that can be obtained from task inventories is listed on the right. Five questions that can be used to obtain that data is listed on the left. Match the data with the questions that can be used to obtain it. Some kinds of data can be obtained by more than one question.

__________ 1. How often is each task performed by a job incumbent?

__________ 2. How much time is spent performing each task?

__________ 3. How important is each task to occupational success?

__________ 4. How critical is correct task performance relative to all other tasks?

__________ 5. How soon is task competence expected after job assignment?

a. percent of workers who perform that task
b. tasks most often performed
c. most important tasks as identified by workers
d. tasks that require least margin of error in performance
e. indicates entry level tasks
f. most important tasks to be able to perform
g. percent of workers' time spent on each task in relation to all other tasks
h. most important tasks as identified by supervisors
i. tasks that may need extra training
j. indicates advanced level tasks

3. DISCUSSION POINT:

   Take into consideration your particular position in your school structure. If you were running a survey what kind of data would you need? What kind of questions would you ask to obtain that data? How do your choices compare to the rest of your group? List group consensus on what are the most appropriate questions.

   1.
   2.
   3.

FEEDBACK:

1. There should be no more than 3 questions asked about each task on a task inventory. If different information is needed from different groups, use different/several inventories. Each question should have a rating scale of not less than 5 points. This gives a greater amount of discrimination between tasks. Each point of the rating scale should be explained on the information sheet.

2. Question 1: a, b, i
   Question 2: a, b, g, i
   Question 3: a, c, h, i
   Question 4: a, d, i
   Question 5: e, j

TASK SURVEY

PART D

PART D: IDENTIFYING THE POPULATION

This section discusses various groups of people who might respond to a task survey. Criteria are listed that might help guide you in selecting your population and examples are provided for specific situations.

PERFORMANCE OBJECTIVE:

After reading this section, the workshop participants will select and describe appropriate populations for proposed surveys.

RESOURCES:

Reading: pp. 1 - 2 "Identifying the Population"

Activity: pg. 3

Feedback: pg. 4

Identifying the Population

Employers and employees generally constitute the population of subjects to which a task survey is directed. Each group must be identified on the basis of their importance to specific curriculum development needs. The population from which a future sample will be selected must be accurately identified in order to collect usable data. There are several situations which will determine whether or not to include any group of employers or employees in the survey population. Several of the criterion questions to consider are:

> As a group, do certain businesses hire a majority of the vocational graduates in your school?
>
> Do certain businesses constitute a growing job market for which a vocational program is to be developed?
>
> Are certain employers in a rapidly changing technology that will cause present courses to need frequent revisions to remain current?
>
> Do the employers in a given occupation require new instruction and/or advancement training which will be provided through your adult education programs?
>
> Does a certain group or cluster of occupations offer various job opportunities for which there is a need to determine the common and unique tasks across the several jobs?
>
> Do you desire follow up information on graduates that can indicate that the training they received in school is being used on their jobs?

If you answer yes to one or more of the questions then that particular group of employers or employees should be identified and included in the intended survey population. Population selection is dependent on the particular questions you intend to ask and also on the basic curriculum needs being considered. New course development requires information from both the employers and employees in certain industries while course revision might require information from employees, supervisors and course graduates. The population that is identified will vary as to type and level of workers, as the nature and location of the occupation changes. For example, if most jobs available to graduates are in an institutional setting such as cafeteria food services, hospitals, clinics, large offices, or large factories, the second line supervisors might be more appropriate for obtaining task information usable in curriculum development than the top managers, employers or owners.

Groups of people other than employers or employees in the business or industries providing job openings may also be an important group to identify for gathering task data. Modified task survey information could be gathered from the equipment manufacturers for those industries where worker performance is closely related to the equipment design. The population of equipment manufacturers might be a small or large group and may be local or distributed across the entire country. Data from such a group concerning design changes and new skills required can provide advanced information on changes in task performance. Such information would allow early planning for course changes as well as budget consideration for acquiring new equipment. Basically a survey would need to identify those tasks highly dependent on equipment design or function and solicit a response from engineers and sales representatives on the degree of performance change in each task. Specific training information could be acquired and introduced in the course as local industry moves toward adopting the new equipment. This example has been presented primarily to depict an alternative type of population to be selected for a survey. The practicality of using a survey to monitor equipment change would have to be considered in light of such factors as the nature of the equipment, the probability that potential local employers would purchase the new equipment, the probability that the school could afford to acquire new equipment for training and the degree to which specific training might be provided on the job.

In summary, the identification of the population of subjects to be studied is not a simple decision but requires that many factors be considered before any group is casually included or excluded.

ACTIVITY: Read the following survey descriptions and indicate who would be the best respondents.

1. You are developing a new course for your geographic area. You want to find out the relative amount of time spent on each task, how soon after employment task competency is expected, and how many workers perform the task.

2. You are updating and revising your course to meet the occupational demands in your area for competent entry level workers.

3. You course occupational cluster has undergone a sudden and drastic change in technology. You want to know how this is going to effect the use of current equipment. How soon these changes will be phased in at local levels. Will the present workers need supplemental training?

4. You wish to find out if your students are using the training they received in school in their present occupations.

FEEDBACK:

Survey 1: Entry level workers, advanced level workers, and/or employers

Survey 2: Entry level workers, and/or employers

Survey 3: Local industry employers, engineers, manufacturers, and/or professional societies

Survey 4: Graduates

TASK SURVEY

PART E

PART E: SELECT THE SAMPLE SIZE*

This section gives you a detailed step by step procedure on how to correctly determine sample size for a representative sample. Examples and tables are provided.

PERFORMANCE OBJECTIVE:

After reading this section, the workshop participants will follow the procedures given and use the tables provided to determine the proper sample size for different survey situations.

RESOURCES:

Reading: pp. 1 - 3 "Selecting the Sample Size"
Activity: pg. 4
Feedback: pg. 5

---

*Information and tables for this section were derived from "The Sampling Problem in Research Design" by Dr. J. Robert Warmbrod, The Agricultural Education Magazine, November, 1965.

Selecting the Sample Size

One of the critical decisions in conducting survey research is determining the number of subjects in the population to be surveyed to insure a representative sample. The following information is provided as a brief and simple set of guidelines on how to select the appropriate size sample for the survey needs.

First, the population to be studied and the number of subjects in the population must be identified, then the following questions must be answered before selecting the size sample to be drawn.

1. How accurate do you wish your sample estimate to be or what margin of error will you accept? There is always some margin of error in all estimates made from sample data.
2. What amount of risk are you willing to accept that your sample estimate may exceed your selected margin of error? There is also some risk that you will draw a bad sample.
3. What percentage of the subjects in the population would you estimate to fall in the category of interest you are studying? You must make an educated guess as to the largest percentage of subjects which will be in the special category or group you want to know about.

The following example illustrates the procedure for answering these three questions and the subsequent steps to follow in selecting a sample size.

Assume that you wish to collect information about the type of work done by nurse assistants in hospitals, clinics, and private clinics. To do this you need to draw a sample that will be large enough to allow estimates to be made about the total population.

You have determined that there are 1000 nurse assistants working in the geographic area being studied. Now the three essential questions must be answered.

1. How accurate do you wish your sample estimate to be or what margin of error will be accepted?

   You decide to accept a sample estimate that is within 5 percent of the true measure. That means if the sample estimate indicates 30 percent you can be sure that the true value of the measure is between 25 and 35 percent of the population.
2. What amount of risk that the sample estimate may exceed the selected 5 percent margin of error are you willing to take?

You decide to take a chance of 1 in 20 that the sample may be a bad sample. In other words, you wish to be 95 percent confident that the sample will not exceed the 5 percent margin of error.

3. What percentage of the population of subjects do you estimate to be in the category of interest?

Since you are concerned with three categories or "types of employment sites" you must estimate the largest percentage in any one type. You estimate that not more than 40 percent of the nurse assistants work in any one of the three type agencies, (hospitals, clinics, and private offices.)

You now have answered the three necessary questions and are ready to select the sample size. Recall that the three conditions are:

"desire a 5 percent margin of error for the sample data"

"will take 1 chance in 20 of a bad sample"

"estimate 40 percent in category of interest"

The next step is to go to the table provided and determine the sample size necessary. To use the table, read down the column at the left (Number of Sampling Units in Population) and locate the size of the population being studied. (1000 nurse assistants).

Number of Sampling Units in Population	If willing to take a risk of 1 in 20 that actual error is larger than five percent and the estimated percentage of the population in the smaller category is:					If willing to take a risk of 1 in 10 that actual error is larger than five percent and the estimated percentage of the population in the smaller category is:				
	10	20	30	40	50	10	20	30	40	50
100	59	72	77	79	80	51	65	71	73	74
200	84	112	125	132	133	68	96	110	116	118
400	106	156	183	196	200	83	126	151	164	168
600	116	179	215	234	240	89	141	173	189	195
800	122	194	237	259	267	92	150	186	206	212
1000	126	204	251	277	286	94	156	195	217	224
1500	131	219	275	306	316	97	165	209	234	242
2000	134	227	288	322	333	99	169	217	143	252
2500	136	232	296	333	345	100	172	222	249	259

*If population is less than 100, survey the total population.

Next read across the first row to locate the percent of subjects estimated to be in the category of interest, (not more than 40 percent in any one type of site.) Now read down the column under the 40% heading until intersecting the 1000 population level. The number 277 indicated is the size sample that should be surveyed to obtain the desired level of accuracy. You must obtain 277 responses to meet the levels of error selected.

A larger sample size decreases the margin of error for your sample. A smaller sample size increases the margin of errors as well as increasing the chances of getting a bad sample. If your returns are less than the selected sample size your sample accuracy is decreased.

In summary, follow this procedure for selecting a sample size:

1. Determine who the subjects are in the population to be studied.
2. Determine the number of subjects in the population.
3. Obtain a list of all the subjects that do not have deletions or duplications
4. Establish the amount of error accepted. (5%, 10%, 15%, etc.)
5. Determine the risk taken of drawing a sample that exceeds the selected margin of error. (1 in 20; 1 in 10)
6. Estimate the largest percentage of the population expected to be in the category of interest. (20 to 30 percent, 30 to 40 percent, etc.)
7. Go to the table provided and determine the sample size by finding the intersection of the population column and the percent of interest row. That number is the number of responses needed to collect representative data within the margins established.

ACTIVITY: Supply the missing information according to the seven steps listed on page 3.

1. You are going to survey small appliance repair people that work in three different types of agencies. You have a list of all 823 workers in your job placement area. You want an error of no more than 5% and will take a 1 in 20 chance of drawing a bad sample. You estimate no more than 40% of the workers are employed in any one type of agency. How many responses do you have to collect to be certain of a representative sample?

2. You are going to survey 517 people who are employed in plant nurseries in a three county area. You estimate that no more than 20% are in clerical or administrative positions. You want an error of no more than 5% in your sample. Decide what risk you will take that your sample is unrepresentative and determine the number of responses you need.

3. You wish to do a follow-up study of graduates to determine how many are working in jobs for which they are trained and of those that are, what tasks they perform. You have a list of all 765 graduates from your school in the past three years. Estimate the percentage in the category of interest (working in jobs for which they were trained), establish the amount of error you will accept, the degree of risk you will accept, and determine your sample size.

FEEDBACK:

1. You should collect the responses of 259 people to be sure of a representative sample.

2. If you decided on a risk of 1 in 20 you should collect the responses of 179 people.

   If you decided on a risk of 1 in 10 you should collect the responses of 126 people.

3. There is no one correct answer. The number of people will vary according to the percentage you estimate are in the category of interest and the amount of risk you are willing to accept.

TASK SURVEY
PART F

PART F: SELECTING SAMPLING METHODS

This section discusses population characteristics that dictate the method of sampling you chose. It discusses the methods, advantages, and disadvantages of simple random sampling, cluster sampling, proportional stratified sampling, and disproportional stratified sampling.

PERFORMANCE OBJECTIVE:

After reading this section the workshop participants will select an appropriate sampling method for given population characteristics.

RESOURCES:

Reading: pp. 1–5 "Drawing a Representative Sample"
Activity: pg. 6
Feedback: pg. 7

Drawing a Representative Sample

The sample of subjects selected will be the potential respondents to a survey. Because a good sample should represent the normal distribution of important characteristics in the whole population, the methods of selecting a sample and the size of the sample chosen are not to be determined casually. In order to draw valid conclusions from the responses obtained on a task survey the sample should be as representative of the whole population as possible. A sample drawn from most convenient lists of names or the most convenient group of people may give information that differs considerably from the rest of the population. There are several techniques for selecting a sample that has a good chance of being representative of the total population. The techniques discussed here are simple random sampling, stratified random sampling and cluster sampling.

Before selecting a means of drawing a sample it is essential to look at the important characteristics of the population being studied. The population characteristics are homogeneous, (evenly distributed) when the following conditions exist.

The subjects in the population work in a single occupation
The subjects in the population work in one type of agency
The subjects in the population use one type of skill
The population is found in one location
The agencies offer jobs with equal placement opportunities for graduates

In such cases a simple random sample can be drawn.

Random sample selection, sometimes referred to as representative or proportional sampling, involves methods of selection which allow each unit or subject in the population an equal chance of being selected. Some common techniques for drawing a random sample are:

1. Write all the names of the population subjects on separate pieces of paper, place them in a container, mix them up and draw out the prescribed number of names. As each name is drawn and recorded, it must be placed back in the container with the other names before drawing another name.
2. Give each subject on the list a number, and go to a table of random numbers (found in back of the basic statistic text books). Start anywhere in the tables. Read consecutive numbers in any direction and select those subjects whose numbers correspond with those found in the tables.

Example: Assume you wish to survey nurse assistants who work in hospitals in your job placement area. You are concerned with one occupation (nurse assistant), one type of agency (hospitals) and one location (local area.) First obtain a list of all the nurse assistants employed in the local hospitals. Next, assign each assistant a number. Use a table of random numbers to select the size sample wanted.

The advantages of simple random sampling are in the elimination of bias in sample selection, the representativeness of the sample, ease of accessing sampling errors based on laws of chance and the way it reveals the variability of the population. The disadvantages include the necessity of obtaining a complete list of cases in the population, and the possibility of drawing a poor sample.

Cluster sampling is another form of random sampling. It is used when the proposed population is too large to make it feasible to obtain the names of each possible case for the sample. Cluster sampling reduces the number of cases the sample is drawn from by randomly selecting from a hierarchy of classifications.

Example: Assume you wish to sample the population of nurse assistants in the state. The number of nurse assistants in the proposed survey area is much too large to work with. Follow these steps to reduce the number of cases from which to draw a sample:

1. Divide the survey area into smaller geographic regions (county - cities - townships - voting districts, etc.) and draw a random sample of regions.
2. From each of these regions draw a random sample of hospitals
3. From each of these hospitals draw a random sample of wards
4. Obtain the names of the nurse assistants employed in these wards and draw a random sample of names for your survey.

The more steps you go through in cluster sampling, the larger the possibility of losing the representativeness of the population with the sample drawn.

Stratified Sampling

Many times the population characteristics are not homogeneous, such as in any of the following cases:

The subjects work in a cluster of related jobs

The subjects use a variety of skills in their jobs

The subjects are employed in different types of agencies

The subjects are found in different locations

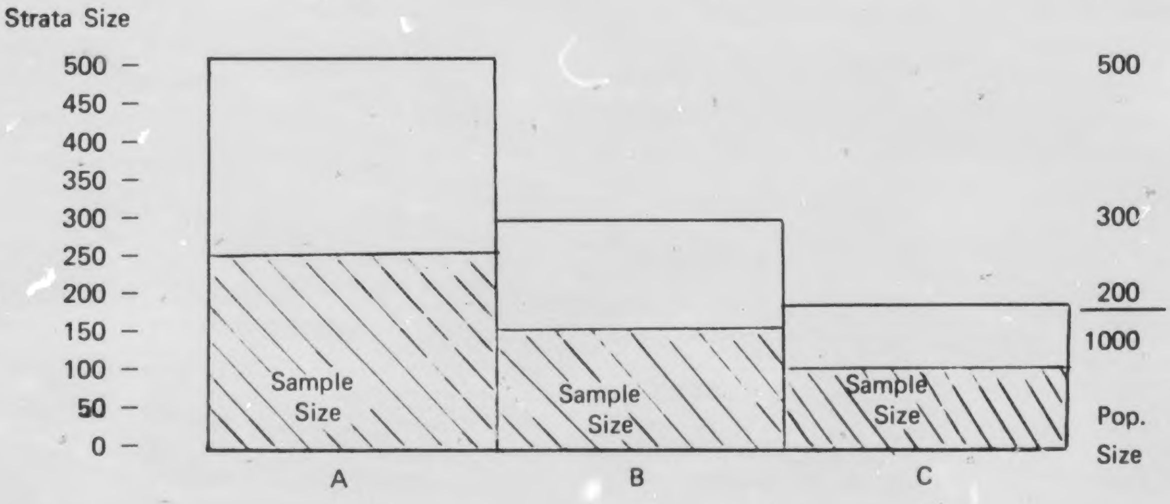
The agencies involved offer unequal placement opportunities for graduates

In these cases select a stratified sample. This means of sample selection allows you to classify the population into two or more strata or classes and then draw a sample from each stratum.

Example: Assume you wish to survey nurse assistants to identify the different and/or common skills required for different agencies in different geographic areas. In this case you are concerned with different agencies (hospitals, clinics, doctor's offices, etc.), different geographic regions (possibly urban vs. rural) and the variety of skills used in these different circumstances. First compile a list of nurse assistants who work in each of the identified agencies and stratify the list of names according to the agency type. Then proceed to draw the desired sample from each strata list. There are two types of samples that can be drawn in stratified sampling; proportional samples and disproportional samples.

In proportional stratified sampling the number of cases drawn from each stratum is in the same proportion to the total sample as the number of cases in the stratum is to the total population as can be seen in Figure 2. Stratum A has 500 cases or one half the population of 1000. The sample drawn from Stratum A is 250 or one half the stratum size. The same follows for Stratum B and Stratum C.

Proportional Startified Sample



Strata

Figure 2

One advantage to proportional stratified sampling over simple random sampling is that it eliminates the chance that a stratum with only a few cases will be completely unrepresented. An easy way to draw a proportional stratified sample is first decide what proportion of the population is to be sampled and second, randomly select the number of cases that represent that proportion of each stratum.

Example

You wish to survey 20 percent of a population of 500 nurse assistants for a total sample size of 100 cases. The nurse assistants are stratified in the following manner:

Stratum A. Nurse assistants who work in hospitals = 300 (300/500 = 60% of the population)
Stratum B. Nurse assistants who work in clinics = 175 (175/500 = 35% of the population)
Stratum C. Nurse assistants who work in doctor's offices = 25 (25/500 = 5% of the population)
Population Total = 500

To determine the number of cases to be selected randomly from each stratum, take 20 percent of the total number of cases in each stratum. (Formula: percent of population to be included in the total sample times the number of cases in a stratum = number of cases to be drawn from that stratum.)

Stratum A. 20% of 300 = 60 cases (60/100 = 60% of the sample size)
Stratum B. 20% of 175 = 35 cases (35/100 = 35% of the sample size)
Stratum C. 20% of 25 = 5 cases (5/100 = 5% of the sample size)
Total sample size = 100

A quick check will show that the number of cases randomly selected from each stratum is in the same proportion to the stratum as the stratum is to the population. In drawing a disproportional stratified sampling (also called controlled sampling) an equal number of cases is drawn from each stratum regardless of what proportion the stratum makes up of the population. See Figure 3.

Disproportional Stratified Sample

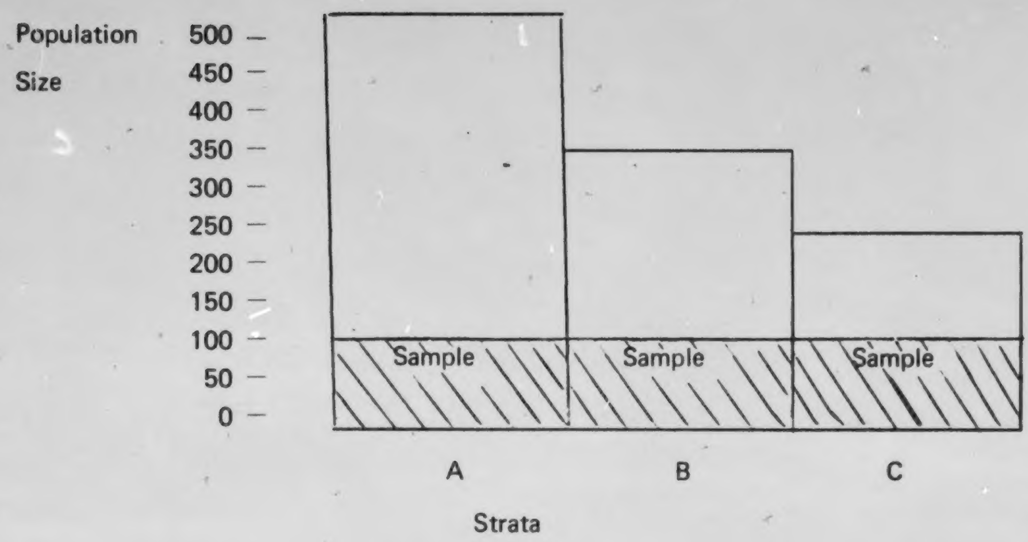


Figure 3

One advantage of this method is that it facilitates comparisons between the different strata. It is also economical in that it does not require securing a large number of responses from the larger groups in the population. A disadvantage can be finding an equal number of qualified cases in the smaller strata. The attainment of an equal number of cases per stratum may be hard to achieve. Anything less would necessitate the weighting of the responses to equalize their value as illustrated in the following example.

Assume you wish to draw 50 cases from each of three agencies employing nurse assistants to make up a sample size of 150 cases. It is possible to locate only 25 nurse assistants working in doctors' offices. It would be necessary to give those cases twice the value of the others (count each response twice) in the total group tally to make up for the lack of numbers.

In summary, the selection of sampling techniques depends first on the characteristics of the population and the availability of the cases in the population Use a simple random sample if the population characteristics are homogeneous. Use a stratified random sample if the population characteristics are not homogeneous and the survey explores several groups that can be stratified according to important differences. The population size and availability will determine whether to choose cluster or simple random selection. Proportional stratified samples may be drawn when stratum size is an important characteristic for interpreting the data. If basic information is desired and stratum size does not effect the use of the data, use disproportional samples.

ACTIVITY:

1. Match the population characteristics to appropriate sampling methods.

Population Characteristics

1. _____ 215 greenskeepers for golf courses in your geographic area of concern.

2. _____ Over 10,000 dental assistants located throughout the state

3. _____ Auto repair persons working in the local area, in 3 types of agencies

4. _____ 20 graduates from each program in your school

5. _____ 560 employees of bakeries listed in census data

6. _____ 5,000 insurance salespersons throughout the state

7. _____ Secretaries working in specialized professional offices (medical, dental, legal, etc.)

Sampling Methods

A. Cluster sampling

B. Disproportional Stratified

C. Proportional Stratified

D. Simple Random

2. You are going to survey 1000 Clinical Medical Assistants. Develop a strategy for cluster sampling;

3. You know that 500 of the Clinical Medical Assistants work in general practice offices, 250 work in family practice offices, 150 work in internal medicine offices, and 100 work in obstetrics and gynecology. You wish to draw a proportional stratified sample of 30 percent of the population. How many people would you chose from each category?

FEEDBACK:

1. Population 1 : d
   Population 2 : a or d
   Population 3 : c
   Population 4 : b
   Population 5 : d
   Population 6 : a or d
   Population 7 : c

2. Divide the state into counties. Draw a random sample of counties. Obtain lists of health facilities that employ medical assistants. Draw a random sample of facilities. Obtain a list of medical assistants from those facilities. Draw a random sample from that list.

3. 30% of 500 = 150 from general practice
   30% of 250 = 75 from family practice
   30% of 150 = 45 from internal medicine
   30% of 100 = 30 from obstetrics and gynecology

TASK SURVEY

PART G

PART G: DEVELOPING THE SURVEY PACKET

This section introduces you to the mechanics of developing the survey packet. Explanations of, and examples of cover letters, instruction sheets, background information sheets, and follow-up letters are presented, as well as discussions on tokens and endorsements.

PERFORMANCE OBJECTIVE:

After reading this section, the workshop participants will identify the components of a survey packet, and list the important characteristics of the components.

RESOURCES:

Reading:	pp. 1-4	"Developing the Survey Packet"
	pp. 5-9	"Appendices C, D, E, and F"
Activity:	pg. 10	
Feedback:	pg. 11	

Developing the Survey Packet

The contents of a task survey packet will generally include a cover letter, instruction sheet, a background information sheet, a task inventory (developed in phase I), a mailing envelope, a return envelope, and an optional gift or token. A follow-up letter is an important part of the survey process, but will not be included in the original survey packet. After selecting the tasks and questions to be used on the inventory, all of the survey components must be designed and printed. Each component will be reviewed in the following sections.

Cover Letter

The cover letter should introduce the school organization and explain the purpose of the survey to a prospective respondent. The impression made by the cover letter may determine whether or not the reader responds to the survey, so the contents and format should be well thought out. Preliminary drafts of the cover letter should be submitted for review to several people who represent the groups to be surveyed. They should check the first draft for content, style, and clarity before developing the final draft. Generally, the cover letter should explain:

The purpose of the survey and contents of the packet.
The reasons why the reader has been selected as a respondent.
The importance of the individual's response to the survey.
The deadline for responding.
An expression of appreciation for their assistance.

When surveying people who belong to a recognized organization, a letter of endorsement from the organization included with the cover letter will generally increase the number of returns. Advisory committee members may be able to assist in gaining an endorsement from various related organizations. Examples of cover letters can be found in Appendix C.

Instruction Sheet

Clear and concise instructions to the respondent on how he/she is to fill out the survey instrument are essential to a successful survey. The instructions must be understood by the survey respondents in order for them to provide accurate responses. The instructions should be printed on a separate sheet. The use of examples and illustrations should be used to increase the clarity of the instruction. Make the answering process as simple as possible and thereby, simplify the instructions. By performing a self-answering procedure and recording each step, you can produce a detailed list of instructions for the first draft. The detailed steps can then be combined into instructional statements. It might help to carefully read each of the written instructions and underline the key terms in each. Be sure to explain any words or phrases which have special meaning in the survey instructions.

Test the instructions and explanations by having several people who are not familiar with the material try to complete the survey forms. If they fail to do so correctly, carefully question them to determine what is confusing in the instructions and revise accordingly. The responses to the survey questions should generally take the form of rating scales with words or phrases identifying the relationship between the different points on the scale. Provide a clear definition for each word or phrase used on the scale. The use of words such as "few - some - many" or "poor - fair - good" will make it difficult for the respondent to determine what is meant by the terms and consequently will leave questions as to the proper interpretations of the response. A complete explanation and example of the meaning of each word or phrase should be provided along with the instructions. Assigning numerical values to answers can aid the respondent in judging his/her most appropriate answer. Use numbers to indicate different values assigned to different responses on the answer scale. This should aid the respondent in determining the importance of one response over another. Examples of instruction sheets are in Appendix D.

Background Information Sheet

The background information sheet should be designed to collect relevant information from the survey respondents. Only important and useful information which will help in making curriculum decisions should be requested. Requests for extensive information tends to discourage response. The background information which can assist in interpreting the task data will include the following information from the respondents:

Job title
Job location
Type of business where employed
Number of years in the occupation
Number of years in the present job
Education and training background
Where occupational training was received

By collecting the suggested background information from the respondent, the following information can be determined:

What are the different job titles used in an occupation?
Which tasks are common and which are unique to the various job titles?
How often do workers change jobs in an occupation?
How long do workers remain in the occupation?
Which tasks are performed in different types of agencies?
Which tasks are most frequently performed by workers with different amounts of job experience?
How does education differ among workers and how does task performance relate to education?
What type of training have the respondents received and where did they receive it?

In order to simplify the collection and the tabulation of background information, use multiple choice type responses. Avoid the use of open-ended questions as they discourage response and are difficult to summarize when they are answered. Examples of background information sheets can be found in Appendix E.

If automatic data processing forms will be used, consult the equipment operation representative and discuss the most efficient and economical response forms to use. Local schools with data processing programs should consider the possibility of using their own equipment to tabulate results. Automatic equipment is not essential to the survey process but it does provide a means for treating the data to a greater number of analysis techniques. Once the background information sheet is designed, it should be tested with several representative respondents to determine if the instructions are clear and the format is readable and easy to follow.

The Return Envelope

To insure a higher return on the survey, provide a stamped, self-addressed return envelope in the survey package. Postage will be increased somewhat, but it is logical to do so. Since a given amount of money, time, and effort has been invested in developing the survey and mailing it out, any non-returns constitute a total loss; therefore, if a marginal postage cost increase can increase the number of returns the total survey cost — recovery ratio is improved.

Number or code envelopes (or surveys) in some manner to determine who has responded. Those not responding can then be sent a follow-up letter to encourage them to complete the survey. By using a code system, there is some chance that individuals will not respond because of suspicions about the use of the identification code. If a code system is used, it should be disclosed, explained, and a statement of confidential use included on the background information sheet or the cover letter to assure the respondent of the privacy of his/her return.

Tokens

A token can be any item which is included in the survey, such as a small pencil, ruler, plastic calendar, sports schedule, or ticket or coupon having an exchange value. The inclusion of a token with the survey instrument is optional. Tokens or gifts have questionable usefulness in greatly increasing the number of returns. However, while they may cause only a small increase in the total returns, they may serve a valuable public relations or publicity purpose which would justify their cost.

Survey Follow-up Letters

Survey follow-up letters are not part of the survey packet that is originally mailed to the survey sample. Their purpose is to increase the number of returns by reminding non-respondents about the survey and requesting that they return it. Follow-up letters can be designed at the same time the rest of the survey materials are developed or at a later date. A survey follow-up contact may take the form of a post card or letter, and should include:

A reminder to the non-respondent that they were mailed a survey
A request that the non-respondent fill out the survey and return it
A tactful acknowledgment that the survey may already be in the mail, in which case, the respondent should ignore the reminder
A statement of appreciation for their assistance

Examples of follow-up letters are in Appendix F. Follow-up letters should be brief, to the point, and courteous. They can be just a reminder or possibly include a second survey instrument.

APPENDIX C : SAMPLE COVER LETTER

APPENDIX D: SAMPLE INSTRUCTION SHEET

APPENDIX E: SAMPLE BACKGROUND INFORMATION SHEET

APPENDIX F: SAMPLE FOLLOW-UP LETTER

IML INSTRUCTIONAL MATERIALS LABORATORY
TRADE AND INDUSTRIAL EDUCATION
THE OHIO STATE UNIVERSITY, 1885 NEIL AVENUE, COLUMBUS, OHIO 43210 | TELEPHONE 614 · 422-5001

Dear Dr.

The Vocational Instructional Materials Laboratory is conducting a study that we believe you will find helpful to your profession. We are involved in developing new instructional materials in the career field of Medical Assisting. The information from this study will be used to revise existing Medical Assisting programs in order to improve the quality of training programs being offered to students in your area.

We need your valuable input as a doctor-employer to make sure the skills taught to students in secondary vocational programs will meet the needs of their employers. Please take a little of your time and complete this questionnaire and the brief background information sheet. The background information sheet is designed to tell us what type of assistants are employed in various types of offices in various areas. The questionnaire asks you to respond to two questions for every task performed in your office. The first question asks how precisely a task must be performed to meet established standards. The second question asks how proficient you would want a recent graduate from a secondary vocational program in medical assisting to be in performing each task.

Your participation is vitally essential to this project and your generous assistance is appreciated. Please use the self-addressed, stamped envelope to return the completed questionnaire by May 16, 1975. Your prompt response will insure the inclusion of your opinions in our study. Thank you for your professional attitude and assistance.

Sincerely,

Faith L. Justice

Faith L. Justice
Research Associate

SURVEY INSTRUCTIONS

We are concerned with designing curriculum to provide graduates from vocational programs with adequate entry-level skills in the career field of Medical Assisting. You can help us identify those skills by reading the explanations and following the instructions given below. Please make any written suggestions you feel will help us in our effort.

1. Fill out the Background Information Sheet completely.

2. Read each task statement carefully. Respond only to those tasks which are performed in your office by circling the appropriate number according to the following codes:

   Criticality indicates the tolerance level allowed in the performance of each task without significant loss of time, materials, equipment, patient comfort or safety.

   1. Flexible: Relatively unimportant whether the task is performed in a certain way or not. (Example: Read to a patient*)
   2. Average Criticality: Deviation from prescribed methods could result in minor delays, patient discomfort, or loss of resources. (Example: Administer enema*)
   3. Above Average Criticality: Very little tolerance may be allowed without risk to worker or patient or loss of resources. (Example: Maintain isolation technique*)
   4. Highly Critical: Must be done within strict parameters to avoid irreversable loss of health or expensive equipment. (Example: Administer intravenous medications*)

   Proficiency indicates how proficient a recent graduate of a secondary vocational program should be in performing each task.

   1. Familiar with the task, but not skilled in performing it.
   2. Slightly skilled in performance, can perform under direct supervision, need review and practice.
   3. Moderately skilled in performance, can perform with partial supervision and brief practice.
   4. Highly skilled in performance, can perform without supervision, no practice needed.

3. In the spaces provided at the end of each section, write in and rate any tasks that are performed in your office and are not listed.

*Example taken from results of A Study of Nursing Occupations conducted by U.C.L.A. in 1972.

G-8

BACKGROUND INFORMATION SHEET

THIS INFORMATION IS CONFIDENTIAL AND WILL BE USED FOR RESEARCH PURPOSES ONLY. THE INFORMATION WILL BE REPORTED BY GROUP ONLY.

1. Check primary type of agency where you practice:

____Single Practice ____Clinic
____Group Practice ____Hospital

2. Number of doctors in the office__________

3. Medical specialities of office____

4. Number of assistants you supervise_________

5. Number of assistants in the office by job title:

____Certified Medical Assistant ____Registered Nurse
____Medical Assistant–Clinical ____Licensed Practical Nurse
____Medical Assistant–Administrative ____Medical Technologist
____Other (specify)____

6. Do you provide on the job training for untrained Medical Assistants?
Yes____ No____

7. County of practice____

8. I do not employ medical assistants_____________________________

9. I do not wish to respond to this survey________________________

10. Comments:

IML INSTRUCTIONAL MATERIALS LABORATORY
TRADE AND INDUSTRIAL EDUCATION
THE OHIO STATE UNIVERSITY, 1885 NEIL AVENUE, COLUMBUS, OHIO 43210 | TELEPHONE 614 · 422-5001

May 19, 1975

Dear Dr.

I recently mailed to you a survey concerning tasks done by Medical Assistants. I asked that it be returned by May 16, 1975. If your survey is in the mail, thank you very much for your professional assistance. If you have not returned the survey, please fill it out and return it. If you do not employ assistants or do not wish to respond, please take two minutes of your time to fill out the brief background information sheet, check the appropriate space and return the survey by May 23, 1975.

As I mentioned in the cover letter, this survey is part of a federally funded project. The information will be used in a state-wide curriculum development effort in the vocational training of Medical Assistants. The results of this study will be reported to the Ohio Medical Assistants Association and each county medical society that provided us with a directory. If you have any questions as to how this information will be used, please feel free to write or call me at the above address.

Thank you again for your valuable assistance in helping to make this study accurate and representative of the medical profession's opinion.

Sincerely,

Faith L. Justice

Faith L. Justice
Research Associate

ACTIVITY:

1. Circle the correct answer. Choose only one group.

   A task survey packet should include at least the following items:

   a. cover letter, instruction sheet, background information sheet, task inventory, token or gift, follow-up letter.

   b. cover letter, instruction sheet, background information sheet, task inventory, token or gift.

   c. cover letter, instruction sheet, background information sheet, task inventory.

   d. cover letter, instruction sheet, background information sheet, endorsement, task inventory.

2. Match the appropriate characteristics and/or functions listed on the right with each component listed on the left.

   A. Cover letter

   B. Instruction sheet

   C. Background information sheet

   D. Task inventory

   E. Return envelope

   F. Token or gift

   G. Follow-up letter

   Characteristics

   ____ increases the number of returns
   ____ states the purpose of the survey
   ____ gives examples and illustrations on how to fill out the survey
   ____ asks for information about respondents occupation
   ____ lists the task statements
   ____ is coded
   ____ serves for good public relations
   ____ reminds the non-respondents about the survey
   ____ has a rating scale
   ____ assists in interpreting the data
   ____ insures the proper interpretation of the rating scales
   ____ introduces you and/or your organization
   ____ contains an expression of appreciation
   ____ contains a deadline for responding
   ____ asks for information about the respondents' education and training

FEEDBACK:

1. A task survey packet should include at least the following: (c) cover letter, instruction sheet, background information sheet, and task inventory.

    A gift or token is optional.
    An endorsement is optional.
    A follow-up letter is not a part of the survey packet, but is an important part the survey process.

2. A cover letter

    states the purpose of the survey.
    introduces you and/or your organization.
    contains an expression of appreciation.
    contains a deadline for responding.

    An instruction sheet

    gives examples and illustrations on how to fill out the survey.
    assists in interpreting the data.
    insures the proper interpretation of the rating scales.

    A background information sheet

    asks for information about the respondents occupation.
    is coded.
    assists in interpreting the data.
    asks for information about the respondents' education and training.

    A task inventory

    is coded.
    has a rating scale.
    lists the task statements.

    A return envelope

    increases the number of returns.

    A token or gift

    increases the number of returns.
    serves for good public relations.

    A follow-up letter

    increases the number of returns.
    contains an expression of appreciation.
    contains a deadline for responding.

TASK SURVEY

PART H

PART H: DISTRIBUTING AND COLLECTING THE SURVEY

This section discusses the advantages and disadvantages of mail and personal distribution of surveys as well as follow-up techniques.

PEFORMANCE OBJECTIVE:

After reading this section, the workshop participant will correctly identify as "true" or "false" statements about the characteristics of mail surveys, personally distributed surveys, and follow-up contacts.

RESOURCES:

Reading:	pp. 1-2	"Distributing and Collecting the Survey"
Activity:	pg. 3	
Feedback:	pg. 4	

Distributing and Collecting the Survey

Once the survey instrument is developed and sample size is determined, the survey material (cover letter, instructions, background information sheet, and task inventory) can be duplicated in appropriate numbers. It is recommended that the task inventory be printed on colored paper to help increase the returns.

At this time, arrange for sufficient supplies of mailing and return envelopes, postage, and tokens or gifts, to conduct the survey by mail. Mail surveys are the most feasible when surveying large numbers of people, many agencies, and many different locations , or when you have access to workers' names and home addresses. Students or clerical help can type addresses, stamp return addresses, affix sufficient postage to return envelopes, collate all materials, code and mail the survey instruments.

Student or clerical help can also develop a filing system for collecting the returns. If a response code was used, it will be necessary to check off respondents and contact non-respondents. Follow-up contact should be made when the daily returns have dwindled. The rule of thumb is: the more follow-up contacts made, the larger the number of returns. Budget and time restrict the number of follow-up contacts that are practical.

An economical first follow-up contact for a mail survey is a simple post card reminder. After returns have dwindled again, a second reminder in letter form with an additional survey instrument can be mailed. The letter could suggest that the non-respondent might have misplaced the survey or it was lost in the mail and would they please fill out and return the survey instrument provided in this mailing. Two alternatives are a single contact of a letter or card, with no survey, or mailing the letter first with the additional survey following it.

If possible, a telephone follow-up contact can be used. Personal requests usually increase returns. If the non-respondents do not wish to reply for any number of reasons try to obtain some background information to see if the non-respondents as a group differ greatly from the respondents. You can then assess whether the exclusion of their responses from the survey will bias the results and adjust for it.

An alternative to mail survey is personal distribution. This will often yield a higher percentage of returns than a mailed survey, but requires more time and effort. Personal distribution is a good way to survey a small sample and insure good returns. It is also best when sampling a large concentration of workers in a few agencies, or if the names of the agencies are available, but you cannot obtain the names and addresses of workers for a direct mail survey. Personal contact also has the advantage of being good for public relations. The individual or an advisory committee member can make the initial contact with the employer or supervisor, explain the purpose and process of the survey, obtain permission to survey the workers, and arrange for a time to deliver the surveys and a time to collect them.

ACTIVITY:

Mark each statement true or false:

__________ 1. A task inventory printed on colored paper increases the returns.

__________ 2. Mail surveys are most feasible when surveying large numbers of people.

__________ 3. Mail surveys are most feasible when you do not have the names of the respondents.

__________ 4. Response codes enable you to follow up non-respondents.

__________ 5. The fewer times you bother people with follow-ups, the more response you will receive.

__________ 6. A follow-up contact can be a post card.

__________ 7. A follow-up contact can be a letter.

__________ 8. Personal distribution is more efficient for a small sample.

__________ 9. A follow-up contact should not include another survey.

__________ 10. Personal distributions are more efficient for workers scattered throughout many agencies.

__________ 11. A follow-up contact can be a phone call.

FEEDBACK:

1. true
2. true
3. false, it is more difficult to reach the worker through a business address.
4. true
5. false, the more follow-ups made, the higher the rate of returns.
6. true
7. true
8. true
9. false, including a second survey often increases the returns.
10. false, that would entail unnecessary work.
11. true

TASK SURVEY

PART I

PART I: CALCULATING SUMMARY STATISTICS

This section discusses compiling and treating the data. Simple tabulation methods are discussed and examples of tally sheets shown. Step by step procedures are given for figuring the percentage of workers who perform the task and a relative mean value for a task.

PERFORMANCE OBJECTIVE:

After reading this section, the workshop participants will calculate the correct percent of workers performing three given tasks and calculate the correct relative mean value for two given tasks from sample data.

RESOURCES:

Reading:	pp. 1-2	"Compiling the Data"
	pp. 2-5	"Calculating Simple Statistics"
Activity:	pg. 6	
Feedback:	pg. 7	

Compiling the Data

After all the surveys are collected, the next step in the task survey process involves tabulating and compiling the responses and performing any appropriate calculations. You must first design a tally sheet for the background information and one for the task data. A tally sheet should be ruled in rows and columns. This facilitates using it for summarizing the data collected. Student or clerical help can tabulate the responses as they come in or tally the total response at the conclusion of the collection period.

A simple way to tabulate the background information is to list the questions or codes for the questions down the left column or a wide sheet of paper. As each response comes in, record the information in the appropriate row. This allows you to look at the responses at the end of the collection period, and see if any differences exist between those people who responded early or late. Averages, ranges, and standard deviations can be figured for the total responses at the conclusion of the collection period. See Figure 4.

	June 20				June 21					
(1) Yrs. in Position	3	5	15	1	4	9	10	11	2	8
(2) Yrs. in Occupation	10	15	15	1	8	13	25	18	2	12
(3) Age	30	32	31	19	29	32	43	37	20	31
(4) Sex M		✓	✓		✓	✓		✓		✓
(5) Sex F	✓			✓			✓		✓	

Figure 4
Sample Tally Sheet for Background Data

The tally sheet for the task data should have the task numbers or codes listed in the left column and a column allowed for each possible response to each question asked on the task inventory. See Figure 5.

You may wish to add extra columns on the tally sheet to facilitate recording the data totals, such as an extra column for the relative means for each task and/or the percentage of respondents who indicated they perform that task.

Task Number	Frequency of Performance					Statistics	
	Never	Once a month or less	Once a week or several times a month	Once a day or several times a week	Several times a day	Percent of workers who perform task	Relative mean
	0	1	2	3	4		
1	5	11	20	30	34	95	2.77
2	1	3	14	37	45	99	3.22
3	20	31	42	7	0	80	1.36
4	2	3	5	15	75	98	3.58

Figure 5

Sample Tally Sheet for Task Data N=100

Calculating Simple Statistics

When the group tallies have been completed, it is easy to perform some simple calculations using a hand calculator. Again, student or clerical aids could perform these functions. One measure to examine is the percentage of respondents who actually perform the task. The total number of respondents who indicated they perform a task at some time is divided by the total number of respondents.

Example: Look at the data in Figure 5 for Task 1. To calculate the percentage of workers who perform task 1:

1. Add the numbers in each response column for that task that indicates performance.*

Response column	Numbers	
Once a month or less	11	
Once a week.	20	
Once a day	30	
Several times a day	34	
	95	Total number of workers who indicated they perform the task at some time.

---

*The number of responses in the "never" column would not be included in this total.

2. Divide that sum by the total number of respondents.

95 = Total number of workers who indicated they perform the task.

100 = N total number of respondents

$\frac{95}{100}$ = 95 percent of the workers perform the task at some time.

Another useful measure is the relative mean value for each task for each question. Calculating a mean value produces a numerical average which can reflect the relative frequency, criticality or importance of each task to all the other tasks. Numerical data about the task can provide a mean value that will indicate the relative position of that task with all other tasks according to the question asked. To derive a relative mean value for one task, follow this procedure.

1. Assign a numerical value to each possible response for the question.
2. Multiply the number of responses in each column for one task, times the numerical value assigned to that column.
3. Add the products obtained in step 2.
4. Divide the sum of the products (obtained in step 3) by the total number of responses for the question.
5. Repeat this procedure for each task.

The relative mean should always be greater than or equal to the lowest value and be less than or equal to the highest value assigned to the columns for each question. The mean value allows ranking and reordering of the tasks according to a single number. It also allows comparison of how a task ranks across several questions. This will help with analyzing the data and drawing conclusions.

EXAMPLE: The question asked of the workers in this example is "How often do you perform this task?" The workers responded to one of five possible answers. Never, once a month or less, once a week or several times a month, once a day or several times a week, several times a day.

According to the data reported for Task 1 in Figure 5, each response column was assigned a numerical value: 0, 1, 2, 3, 4, respectively. Next (step 2) the number of responses in each column for Task 1 was multiplied times the numerical value assigned to that column:

No. of responses per column	X	Column value	=	Product
5		0		0
11		1		11
20		2		40
30		3		90
34		4		136
Total no. of responses = 100		Sum of the Products =		277

From these calculations, you can see that the sum of the products for Task 1 is 277, (step 3) and the total number of responses for that task is 100. To derive the final number that will give you the relative mean, divide the sum of products by the total number of responses. (Step 4)

$\frac{277}{100}$ = 2.77 relative mean for Task 1 for the question on frequency of performance.

It is very important in analyzing data to divide the sum obtained in Step 3 by the total number of respondents and not just the number of respondents that indicated they performed the task. Dividing by the total will give a relative mean value for each task for a defined group (all of the respondents). If the sum is divided by only the number of respondents who indicated they performed the task, you have no way of putting the tasks in relation to one another. For example, after calculations, two tasks may have very similar mean values, but one is performed by 95 percent of the workers, and the second is performed by 15 percent of the workers. This discrepancy would have great effect on the analysis and conclusions.

These operations (percent of workers, and relative mean value) can be performed on any group of the data. You may wish to look at the entire group or subgroups of the respondents. The inventories can easily be regrouped according to specific questions of interest. You may wish to look at the data as reported by respondents with:

different job titles
different numbers of years of experience
different training
vocational school education
varying salary ranges
experience in different types of agencies

Any question asked on the background information will allow regrouping the inventories and retallying the results to compare the groups for differences and similarities. Record the data for the subgroups first, and then total the results for the entire group. If access to a data processing system is available, it may allow many comparisons that would be unfeasible by hand. Some systems will also regroup the data after it has been entered. Consult with the systems operators to ascertain the form the data must be in for processing.

ACTIVITY:

1. Calculate the percent of workers performing tasks number 1, 2, and 4.

   (Formula: percentage = number of workers who perform the task at some time divided by the total number of respondents.)

2. Calculate the relative mean value for performance for tasks number 3 and 5.

SAMPLE DATA

N = 100

Task	Never	Monthly. . .	Weekly. . .	Daily. . .	Several. . .
1	53	38	7	2	0
2	11	18	25	34	12
3	2	9	18	29	42
4	10	17	38	21	14
5	18	24	30	21	7

FEEDBACK:

1. Task 1

    38
    7
    2
    47 divided by 100 = 47%

   Task 2

    18
    25
    34
    12
    89 divided by 100 = 89%

   Task 4

    17
    38
    21
    14
    90 divided by 100 = 90%

2. Task 3

    2 x 0 = 0
    9 x 1 = 9
    18 x 2 = 36
    29 x 3 = 87
    42 x 4 = 168
    300 divided by 100 = 3.00

   Task 4

    18 x 0 = 0
    24 x 1 = 24
    30 x 2 = 60
    21 x 3 = 63
    7 x 4 = 28
    175 divided by 100 = 1.75

TASK SURVEY

PART J

PART J: INTERPRETING THE DATA

This section discusses different strategies and rationales for analyzing and interpreting the data according to the percentage of workers performing the tasks and the relative mean value of the tasks for any question asked.

PERFORMANCE OBJECTIVE:

After reading this section, the workshop participants will rank a set of sample tasks according to a minimum criteria given for percentage of workers performing the task and relative mean value for frequency and criticality. The workshop participants will analyze the sample ranking for inclusion in instruction.

RESOURCES:

Reading: pp. 53 - 54 "Analyzing and Interpreting the Data"
Activity: pg. 55
Worksheet: pg. 56
Feedback: pg. 57

Analyzing and Interpreting the Data

After the survey responses are collected and tallied and all statistics calculated the next step is to analyze the results and interpret the findings for curriculum purposes. Once the appropriate averages and percentages have been claculated, you should rearrange the tasks for easier analysis and interpretation of the data. This process involves making serveral decisions concerning the questions asked about each task. One of the first decisions to make in rearranging the tasks is to determine the percentage of workers that perform a task before it will be considered for instruction. This is based on the rationale that it is inefficient to instruct an entire class on how to perform a task if it is actually performed by a very small percentage of the workers. These tasks may be obsolete or very specialized. In the following example, the tasks first considered are those performed by at least fifty percent of the respondents to the survey. Looking at the sample data in Figure 6, Tasks 1, 2, and 3 would be considered for instruction based on the percent performing criteria.

Figure 6

Data Collected for Duty A

Task	% of workers performing tasks	Mean for frequency	Mean for Criticality
1	95%	1.77	2.89
2	82%	2.54	1.76
3	98%	2.91	2.72
4	27%	1.01	.52
5	45%	.89	2.72

Tasks 4 and 5 should be set aside at this time because they did not have the required percentage of workers performing them. Next, look at the mean value for frequency of performance for the three tasks selected. Decide how frequently a task should be performed before it is to be considered for instruction. In this case, we have arbitrarily decided to choose all those tasks having over a 2.00 relative mean for frequency of performance. This cut off point will let us include all those tasks that are, on the average, performed at least once a month. According to this criteria, Task 1 would be temporarily set aside and Tasks 2 and 3 will be given further consideration. These tasks are next examined for the relative mean value for criticality of performance.

Again, decide on the minimum level of criticality that the task must have to be considered for instruction. Again we have chosen 2.00 as our cutoff point. This would indicate that all tasks in this category have average or above average criticality. According to this criteria, task two would be temporarily eliminated, and task three given further consideration. We now have our tasks ranked according to our three criteria:

Task	%	Performance	Criticality
3	98	2.91	2.72
2	82	2.54	1.76
1	95	1.77	2.89
5	45	.89	2.72
4	27	1.01	.52

As in any ranking procedure, the items at the extremes of [illegible] will be the most discriminated. Task three obviously passes all the criteria for inclusion. It is performed by a large percentage of the workers, it is performed frequently, and is considered highly critical to job success. This task should definitely be given a high priority as an item for instruction. On the other end of the scale, is task four. Very few workers perform this task. It is infrequently performed, and has low importance to job success. This task can be given a very low priority as an item for instruction.

The closer to the middle of any ranking, the less discrimination there is between tasks. Look at tasks two and one. Both are performed by a large percentage of workers, but they have varying ratings on the relative means for performance and criticality. Task two is performed very often, but is below average criticality. Task one is performed infrequently, but is considered very critical to job success. Both tasks have strong indicators that they should be included in consideration for instruction.

Task five provides an interesting problem to interpreting the data. It is performed by less than fifty percent of the workers, is performed very infrequently, but it critical to job success. In this case, the instructor must look at the nature of the task and decide its priority. The task may be some emergency or safety practice that is performed by only a few workers infrequently, but it is vital that the procedure be performed correctly when necessary.

These examples illustrate one way to rank and reorder the tasks into priority levels for consideration for instruction. There are other educational considerations that should be taken into account when reviewing the data analysis, drawing conclusions, and making decisions about instruction. Some tasks may provide a good medium for teaching a certain skill or they may have student motivational value. Some tasks, although not performed often, may be basic to learning more advanced tasks. Local consideration, such as these, can be determining factors for tasks that are not clearly discriminated by the survev data.

ACTIVITY:

1. Rank the following tasks according to percent, frequency, and criticality. Minimum levels to be used: fifty percent or more of the workers must perform the task — values of 2.00 or greater for frequency and criticality.

Task	%	Frequency Value	Criticality Value
1	57	1.69	2.03
2	74	2.26	2.38
3	35	1.35	1.74
4	62	1.88	2.11
5	83	2.45	2.52
6	88	2.62	2.46
7	26	1.60	2.03
8	77	2.29	2.38
9	28	1.18	.60
10	78	2.31	1.45
11	34	1.29	1.66
12	63	1.92	2.08
13	97	2.80	2.72
14	80	2.38	2.51
15	62	1.98	2.15

2. Circle the group of tasks that would definitely be considered for instruction. Strike out tasks which could be eliminated. Draw a line under tasks which need further consideration. Star the task that poses a special problem.

WORK SHEET

Task	%	Frequency Value	Criticality Value

FEEDBACK:

1.

Task	%	Frequency Value	Criticality Value
13	97	2.80	2.72
6	88	2.62	2.46
5	83	2.45	2.52
14	80	2.38	2.51
8	77	2.29	2.35
2	74	2.26	2.38
10	78	2.31	1.45
12	63	1.92	2.08
15	62	1.98	2.15
4	62	1.88	2.11
1	57	1.69	2.03
7	26	1.60	2.03
3	35	1.35	1.74
11	34	1.29	1.74
9	28	1.18	.60

2. Tasks 13, 6, 5, 14, 8, and 2 would definitely be included for instruction. They meet all three minimum criteria levels.

   Tasks 3, 11, and 9 would be eliminated from consideration, in that they meet none of the minimum levels.

   Tasks 10, 12, 15, 4, and 1 need to be further evaluated. They meet two out of three of the minimum criteria levels.

   Task 7 poses a special problem, in that it is performed by a low percentage of workers and is performed infrequently, but is highly critical when it is performed.

SURVEY REPORTS

The following survey reports are presented as examples of the procedures discussed in the preceeding ten modules. Read the two reports carefully noting the use of the procedures and how those procedures affected the usefulness of tne data. Note any shortcomings and/or correct application of procedures.

When you have finished evaluating the reports, answer the six questions in the Task Survey Strategy Evaluation. Refer to the survey reports and/or the modules, if necessary.

A SURVEY OF CERTIFIED DENTAL ASSISTANTS

Conducted by I.M.L.

1973

INTRODUCTION

A survey of Certified Dental Assistants was undertaken as part of the E.P.D.A. Occupational Analysis Project. It was conducted during September and October of 1973 by the project staff at the T & I Instructional Materials Laboratory. Its main objective was to develop, field test and validate a standard survey procedure to be used later in extensive task surveys. Conducting this survey helped establish standard in-house procedures and in-service training for personnel to be involved in future surveys. The dental assistant survey provided an estimate of time and cost involved in conducting a task survey. A second objective was to provide data for use in the analysis of the Dental Assisting occupation to take place in the Occupational Analysis Workshop held during the summer of 1974.

PROCEDURES

Development of the Task List

The task list used in the survey instrument was developed from a suggested course outline in Dental Assisting published by the IML in 1970. The course outline was developed by a panel of nine dental assisting instructors and educational personnel.

Activity statements were taken directly from the outline and clustered under the following duty headings: Chairside Assisting; Chairside Assisting, Specialities; Radiology; First Aid; Microbiology and Sterilization; Dental and Lab Materials; Pharmocology; and Office Management. All statements referring to classroom activities were deleted. The remaining activity statements were reworded to fit a standard task language. The result was a list of tasks stated in behavioral terms that described the activities a Dental Assistant performs on the job.

Design of the Survey Instrument

The survey instrument consisted of six pages of task statements listed under the duty headings. Each respondent was asked to answer the questions of "How often do you perform this task?" and "How important is the correct performance of this task for job success?" The respondents were to indicate their judgments by checking one of three answers for each question. Frequency of performance was divided into subcolumns labeled "Seldom," "Occasionally," and "Frequently." Importance of performance was divided into subcolumns labeled "Slight," "Moderate," and "Great."

These two categories of information were selected on the basis of a review of the literature including suggestions from "Process and Techniques of Vocational Curriculum Development" edited by Smith and Moss, published in April 1970 by the Minnesota Research Coordinating Unit. It was felt that the data from these two questions would provide usable information. These questions would indicate the tasks most common to all Dental Assistants, the tasks most often performed, the tasks most often performed by the greatest percentage of workers, and the tasks most critical to occupational success.

The survey instrument was prefaced with a cover letter giving background information on the survey and project. Also included was an instruction sheet giving directions for completing the survey instrument. See Appendix A for examples of all the survey materials.

Survey Population

The survey population was defined as all Certified Dental Assistants who were members of the Ohio Dental Assistants Association. No uncertified Dental Assistants or non-members of the O.D.A.A. were included in the population. Ms. Marjorie J. Dolkowski, president of O.D.A.A. in 1973, supplied a list of 154 certified members and their addresses. One hundred fifteen people constituting 75 percent of the population were randomly selected for inclusion in the survey sample. Sixty-five people constituting 57 percent of the sample and 42 percent of the population returned the surveys. No background information was gathered except for facts volunteered by respondents concerning the type of institution or position in which they worked. The lack of background information limited the analysis of data and indicated the need for such data in any future surveys.

DATA ANALYSIS

The data presented in the section titled, "Report of the Data" is the data collected from the Certified Dental Assistants who were members of the Ohio Dental Assistant Association. Because of the limited response and the small smaple size, caution is advised in attempting to draw any conclusions from the data. It is provided strictly as an example and does not necessarily represent the total population of Dental Assistants in Ohio.

The data is reported in the following manner. The task statements are listed on the left side of the page in the order they appeared on the task inventory. The right side of the page is divided into two regions. The data on frequency of performance occupies the first five columns and the data on importance of performance occupies the next five columns. See Figure 1.

TASK INVENTORY DENTAL ASSISTANT	Never	Seldom	Occass.	Freq.	Average	None	Slight	Mod.	Great	Average
Dental and Lab Materials										
1. Mix zinc oxide-eugenol for base and temporary	1	1	8	55	2.80	3	1	7	54	2.72

The data for frequency of performance is reported in columns labeled "Never," "Seldom," "Occasionally," "Frequently," and "Average." The first four columns contain the number of responses indicated on the returns in those columns for each task. The fifth column contains the relative mean value derived for each task for the frequency of performance. The data for frequency of performance reported in Figure 1 is read as follows:

Column 1 — One person indicated he/she never performed the task

Column 2 — One person indicated he/she seldom performed the task

Column 3 — Eight people indicated they occasionally performed the task

Column 4 — Fifty-five people indicated they frequently performed the task

The data for importance of performance is reported in the next five columns in the same manner as frequency, except the first four columns are labeled: "None," "Slightly," "Moderate," and "Great." Looking again at Figure 1 the reported data under importance can be read in the following manner:

Column 1 — Three people rated the task as having no importance to their job success

Column 2 — One person rated the task as having slight importance

Column 3 — Seven people rated the task as having moderate importance

Column 4 — Fifty-four people rated the task as having high importance

The fifth column contains a relative mean value for each task for the question of importance. The relative mean value of a task for any question is a single number that facilitates the ranking and reordering of tasks in relation to all other tasks. To calculate a relative mean value for each of these tasks, these procedures were followed:

1. A numerical value was assigned to each response for each question.

Frequency	Importance
0 - Never	0 - None
1 - Seldom	1 - Slight
2 - Occasionally	2 - Moderate
3 - Frequently	3 - Great

2. The value of each response column was multiplied times the number of responses reported in that column for one task.
3. The products obtained in step 2 were added.
4. The sum of the products were divided by the total number of responses returned.

EXAMPLE: To find the relative mean of frequency for the previous task example multiply the column value times the number of responses reported in that column for that task:

Column	Value	X	No. of Responses	=	Product
Never	0		1		0
Seldom	1		1		1
Occasionally	2		8		16
Frequently	3		55		165
			65		182

Add the products (sum=182.) Divide the sum by the total number of responses: 182 ÷ 65 = 2.80. 2.80 is the relative mean value for that task for frequency of performance.

To find the relative mean value of importance for the previous example go through the same procedure using the data from the second section that contains the totals for importance. Again multiply the column values times the number of responses reported in that column for that task:

Column	Value	X	No. of Responses	=	Product
None	0		3		0
Slight	1		1		1
Moderate	2		7		14
High	3		54		162
			65		177

Add the products (sum = 177). Divide that sum by the total number of responses: 177 ÷ 65 = 2.72. 2.72 is the relative mean value for importance for that task.

This procedure is repeated for each task for each question. Once the relative mean value is determined it is easy to rank the tasks from highest to lowest values. Table 1 is an example of reordered tasks under the duty "Dental and Lab Materials." They are ranked from most frequently performed tasks to the least frequently performed tasks according to their relative mean values for frequency.

Table 1

Dental and Lab Materials

Mean Value	Task No.	Task Statement
2.80	1	Mix zinc oxide-eugenol for base and temporary
2.80	3	Mix amalgam for restorative purposes
2.71	2	Mix zinc phosphate for temporary; cementation; base fillings
2.62	9	Mix alginate to take an impression
2.46	16	Mix rubber base and load syringe for impression
2.45	11	Pour a plaster mold
2.42	12	Pour a stone model
2.38	4	Mix silicate for restorative purposes
2.38	5	Mix resin for restorative purposes
2.31	6	Mix acrylic for restorative purposes
2.29	13	Trim a stone and plaster model
2.26	14	Make a partial and complete impression tray (custom)
1.98	10	Box an impression
1.92	19	Prepare compounds for impressions
1.89	17	Mix silicones for impression
1.88	21	Construct wax rims
1.80	15	Mix metallic zinc oxide base for an impression
1.80	20	Construct a base plate
1.75	7	Prepare gutta percha for temporary fillings
1.69	8	Select and bead trays
1.60	22	Articulate models
1.57	18	Prepare hydrocolloid for an impression
1.57	27	Construct an acrylic temporary crown
1.40	23	Carve wax patterns
1.35	24	Sprue and invest wax patterns
1.29	26	Clean and polish wax patterns
1.18	25	Cast wax pattern

FINDINGS AND CONCLUSIONS

The survey accomplished its first objective of developing and field testing a survey process and determining time and cost factors.

The process consisted of three phases:

1. constructing a task inventory
2. acquiring information about each task
3. analyzing the task data

This process was field tested and standardized. As a result of this survey I.M.L. personnel were trained in this process and procedures were implemented to smooth the mechanics of the process. Task language and rules of construction were standardized. General formats were developed for the task inventory, cover letter, and instruction sheet. Printing schedules, collating, mailing, filing and tabulating were refined. Basic statistics and analysis procedures were tested. This provided a basic procedural model for future surveys. Time and cost factors were determined for budget purposes. The expenses of composition, printing, miscellaneous labor and supplies are listed below:

Composition time (10 hours)	$50.00	
Printing (paper and time)	11.50	
Miscellaneous labor	38.00	
Mailing envelopes (115 @ $.16)	18.40	
Return envelopes	.60	
Initial postage (115 @ $.16)	18.40	
Return stamps (115 @ $.08)	9.20	
Total	146.10	$146.10 ÷ 63 = $.43 cost per return

The second objective was to provide data for use in the analysis of the Dental Assisting occupation to take place [illegible] workshop held during the summer of 1974. Some problems [illegible] process which prevented the collecting and reporting of totally accurate and valid data. Caution must be taken not to generalize the results of the survey to all Dental Assistants in Ohio. This particular survey lacked background data. The only characteristics known about the respondents are that they were Certified Dental Assistants and members of the Ohio Dental Assistant Association. There is no way to know how representative this sample is of all Dental Assistants in Ohio.

The contents of the task list was validated. The questions asked about each task, however, were too general and the response scale too narrow to obtain sufficient discrimination between tasks to enable concise decisions. On the instruction sheet, the respondents were asked to check one of the three subcolumns which expressed their judgment of "how often the task is performed" and "how important the correct performance of the task is for job success" compared to all other tasks. No criteria, explanation, or examples as a reference for the respondents' "judgment" was given. Consequently the responses indicated in each subcolumn can be interpreted only in a relative fashion. For example: One respondent might have thought that a task performed weekly was frequently performed and marked that column on the survey. Another respondent might have thought that a task that was performed weekly was only performed occasionally. The use of more specific and self explanatory terms such as "several times a day," "daily or several times a week," "weekly or several times a month," as possible responses to the question or frequency of performance would have yielded more accurate and usable data.

The use of only three possible responses to each question also limited the data. Such a narrow scale as this did not provide enough choices for each respondent to discriminate accurately between tasks, especially in evaluating the tasks for importance. If the task was performed by the respondent, it was usually given a rating of at least "Moderate" importance. There was no way to discriminate between the tasks that fell between the two judgments of moderate or highly important. Since these terms were not explained, or examples given, it is impossible to interpret how close each respondent's concept of slight, moderate and high importance was to each other. As a result of these observations a more discriminating and specific five point scale was used on all of the following surveys.

Another major problem encountered in this survey was control over the accuracy of the tabulation. As a result of poorly marked surveys, counting the responses was very difficult and the totals and averages reported are not completely accurate. The section on the duty "Dental and Lab Materials" was retallied and the statistics refigured, so the examples used in this report are accurate. While some totals vary, the differences on the recount was usually at the second decimal place.

In summary, this survey contained several weaknesses: lack of background data, lack of accurate explanation or examples for the questions asked about each task, poor discrimination between tasks because of limited response choice, and difficulty in tallying the responses. These weaknesses became apparent during the survey process and analysis of survey data. As a result of this study, corrections and improvements were made to the process and implemented in all future surveys.

Report of Data

TASK INVENTORY DENTAL ASSISTANT	Frequency of Performance					Importance of Performance				
	Never	Seldom	Occass.	Freq.	Average	None	Slight	Mod.	Great	Average
Chairside Assisting										
1. Open dental office	0	3	7	65	2.83	0	2	17	46	2.68
2. Preparation of operatories	0	1	2	73	2.95	0	1	6	74	2.90
3. Operate chair	0	3	13	62	2.76	0	3	14	59	2.74
4. Operate dental unit	0	11	16	52	2.52	0	7	14	50	2.61
5. Greet patient	0	0	9	69	2.88	0	0	4	72	2.95
6. Seat patient	0	2	7	69	2.86	0	1	10	61	2.83
7. Set up and assist for an examination	0	2	4	53	2.86	0	0	3	50	2.94
8. Chart using the universal method	1	9	8	43	2.52	1	4	8	46	2.68
9. Chart using Bosworth method	2	18	8	29	2.20	2	9	11	23	1.75
10. Chart using Palmer's method	2	22	6	26	2.00	2	11	17	27	2.21
11. Set up and assist with Flouride treatment	1	15	20	24	2.12	1	6	31	24	2.26
12. Set up and assist with prophylaxis	1	14	11	38	2.32	1	5	14	33	2.49
13. Use dental floss	1	11	18	35	2.34	1	3	6	34	2.66
14. Demonstrate toothbrushing	0	4	17	40	2.59	0	0	6	46	2.88
15. Set up and assist with local anesthetic	0	4	10	50	2.72	0	2	8	49	2.80
16. Retract tongue and cheeks	0	6	8	46	2.67	0	4	4	54	2.81
17. Use and clean the oral evacuator	0	2	7	52	2.82	0	0	5	52	2.91
18. Pass and receive instruments with one hand and with two hands	0	3	6	51	2.80	0	1	6	29	2.78
19. Set up and assist with an amalgam procedure	0	1	5	37	2.84	0	1	7	45	2.83
20. Set up and assist with the placement and removal of rubber dam	0	13	22	30	2.26	0	4	21	26	2.43
21. Set up and assist with amalgam polish	0	18	16	29	2.17	0	9	13	35	2.46
22. Set up and assist for a porcelain procedure	0	5	9	47	2.69	0	1	12	41	2.74

TASK INVENTORY DENTAL ASSISTANT	Frequency of Performance					Importance of Performance				
	Never	Seldom	Occass.	Freq.	Average	None	Slight	Mod.	Great	Average
Chairside Assisting (cont.)										
23. Set up and assist with a porcelain procedure	0	16	12	32	2.27	0	9	19	23	2.27
24. Set up and assist with a gold foil procedure	0	35	9	13	1.61	0	17	14	24	2.13
25. Set up and assist for an indirect gold inlay pup	0	17	12	29	2.33	0	7	9	34	2.54
26. Set up and assist with cementing a gold inlay	0	10	10	38	2.48	0	4	5	50	2.78
27. Clean operatory after a procedure	0	0	5	58	2.92	0	2	4	53	2.86
28. Drain and lubricate the air compressor	1	19	18	25	2.06	0	10	26	25	2.25
29. Take apart, clean and lubricate a conventional right angle handpiece	0	4	18	39	2.57	0	3	13	36	2.63
30. Take apart, clean and lubricate a prophy angle	1	4	13	40	2.59	0	2	7	48	2.81
31. Take apart, clean and lubricate a conventional straight handpiece	0	5	13	42	2.62	0	2	13	43	2.71
32. Change the chuck in a high speed handpiece	0	16	16	27	2.19	0	6	14	34	2.52
33. Clean and wax the dental unit	0	11	24	29	2.28	0	7	17	36	2.48
34. Oil the dental engine	0	17	21	27	2.41	0	8	17	33	2.43
35. Clean and oil the pullies on the engine arm	0	16	19	26	2.16	0	8	15	34	2.46
36. Change the engine belt	3	20	25	16	1.84	1	9	22	30	2.31
37. Arrange instruments in the operatory cabinets	0	3	15	47	2.68	0	1	21	42	2.64
38. Color code instruments	0	28	20	13	1.75	0	22	21	18	1.93
39. Change the bulb in the unit lamp	0	28	30	36	2.09	0	16	27	20	2.06
40. Close the office	0	3	10	53	2.76	0	2	13	50	2.74

TASK INVENTORY DENTAL ASSISTANT	Frequency of Performance					Importance of Performance				
	Never	Seldom	Occass.	Freq.	Average	None	Slight	Mod.	Great	Average
Chairside Assisting, Specialities										
1. Set up for crown and bridge preparation	0	6	6	51	2.71	0	1	4	58	2.76
2. Assist with a crown and bridge preparation	0	6	6	52	2.72	0	1	5	56	2.89
3. Set up and assist with a bridge tryin	0	11	9	44	2.52	0	7	12	44	2.59
4. Set up and assist for seating a bridge	0	7	6	52	2.69	0	2	9	53	2.80
5. Set up and assist for the first denture procedure	1	3	11	51	2.70	1	2	9	51	2.75
6. Set up and assist for the second denture procedure	1	4	11	48	2.66	1	2	12	48	2.70
7. Set and assist for the third denture procedure	1	7	12	44	2.55	1	7	12	43	2.54
8. Set up and assist for the fourth denture appointment	1	8	13	41	2.49	1	7	15	40	2.49
9. Set up and assist for the fifth denture appointment	1	10	8	43	2.50	1	10	14	38	2.41
10. Set up and assist for the first partial denture appointment	1	4	8	51	2.70	1	4	6	51	2.73
11. Set up and assist for the second partial denture appointment	0	7	12	45	2.59	0	5	12	46	2.65
12. Set up and assist for the third partial denture appointment	0	11	15	42	2.46	0	10	14	38	2.45
13. Set up and assist for a periodontal scaling and subgingival currettage	0	11	24	28	2.27	0	4	20	40	2.56
14. Set up for a gingivectomy	0	17	23	23	2.10	0	5	15	43	2.60
15. Mix periodontal pack	0	21	23	21	2.00	0	12	13	37	2.40
16. Prepare patient for surgery	0	12	17	35	2.36	0	6	9	47	2.66
17. Prepare self for surgery	0	12	20	31	2.30	0	6	10	45	2.64
18. Use surgical aspirator	0	9	20	36	2.42	0	5	12	45	2.65
19. Assist with a gingivectomy	0	19	18	25	2.20	0	6	15	38	2.54
20. Clean surgical aspirator	0	10	19	34	2.38	0	5	13	42	2.62

TASK INVENTORY DENTAL ASSISTANT	Frequency of Performance					Importance of Performance				
	Never	Seldom	Occass.	Freq.	Average	None	Slight	Mod.	Great	Average
Chairside Assisting, Specialities (cont.)										
21. Consult patient about proper diet	0	22	21	22	2.00	0	13	19	30	2.27
22. Sharpen periodontal instruments	0	37	11	13	1.61	0	14	20	25	2.19
23. Set up and assist with pack removal	0	25	18	18	1.89	0	11	19	27	2.28
24. Set up for the removal of maxillary teeth	0	12	14	36	2.85	0	6	12	42	2.60
25. Assist with the removal of the maxillary teeth	0	10	11	39	2.48	0	7	9	45	2.62
26. Set up and assist with removal of manidibular teeth	0	12	12	38	2.42	0	7	9	45	2.62
27. Prepare sutures	0	12	17	36	2.37	0	8	15	40	2.63
28. Set up and assist with suture removal	0	12	22	31	2.29	0	11	15	36	2.40
29. Set up and assist with treatment for dry socket	0	18	19	22	2.07	0	14	11	37	2.37
30. Set up and assist with the removal of impacted teeth	0	21	39	26	2.06	0	11	8	42	2.51
31. Set up and assist with an alveolectomy	1	25	16	23	2.03	0	14	4	41	2.46
32. Set up and assist with tori removal	1	34	16	6	1.79	1	12	13	27	2.13
33. Set up and assist with a biopsy	1	30	18	8	1.58	1	11	13	30	2.31
34. Take a blood pressure	3	36	13	7	1.41	3	18	12	24	2.00
35. Take an oral temperature	3	37	15	5	1.37	3	17	15	21	1.96
36. Set up and assist with the diagnosis of an endodontic Patient	1	7	18	35	2.43	1	6	14	36	2.49
37. Set up and assist with cavity preparation and reaming a root canal	2	5	13	44	2.55	2	1	10	49	2.71
38. Set up and assist with irrigating cultures and disenfecting a root canal	1	13	8	42	2.42	1	5	6	50	2.69
39. Set up and assist with canal abturation	1	11	12	36	2.38	1	2	9	43	2.71

TASK INVENTORY

DENTAL ASSISTANT

	Frequency of Performance					Importance of Performance				
	Never	Seldom	Occass.	Freq.	Average	None	Slight	Mod.	Great	Average
Chairside Assisting, Specialities (cont.)										
40. Set up and assist with a pulpotomy	1	12	26	24	2.16	1	5	13	40	2.56
41. Set up and assist with an apicoectomy	1	22	19	17	2.22	1	6	14	34	2.47
42. Set up and assist with a chrome crown procedure	1	22	17	19	1.92	1	8	19	26	2.30
43. Set up for the fabrication of a space maintainer	2	22	21	15	1.82	2	11	17	28	2.22
44. Assist with the fabrication of a space maintainer	3	25	19	14	1.72	3	11	17	24	2.13
45. Set up and assist with the diagnosis of an orthodontic patient	5	21	17	15	1.72	4	15	11	21	1.96
46. Prepare and trim orthodontic models	4	25	11	16	1.70	3	9	11	25	2.21
47. Set up for the banding appointment	6	27	12	11	1.50	4	10	13	23	2.10
48. Size orthodontic bands	6	31	10	8	1.36	3	13	13	20	2.02
49. Weld or solder brackets to orthodontic bands	6	34	9	8	1.41	3	12	15	19	2.02
50. Set up and assist with the removal of orthodontic bands	6	28	9	13	1.52	3	10	15	21	2.10
51. Process an acrylic retainer	5	33	12	7	1.37	3	11	18	19	2.04
52. Consult patient on do's and don't's while wearing orthodontic appliances	6	19	15	17	1.75	3	7	14	27	2.27
Radiology										
1. Demonstrate how the component parts of an X-ray unit work	1	31	12	13	1.65	1	13	17	22	2.13
2. Seat the patient	0	1	8	55	2.84	0	3	10	48	2.74
3. Consult with patient on the importance of X-rays	0	7	13	42	2.56	0	5	5	49	2.75
4. Place X-rays for short cone technique	1	10	6	43	2.52	0	3	7	45	2.77
5. Place cone tip for the short cone technique	1	10	7	38	2.47	0	2	7	41	2.78
6. Place X-ray for the long cone technique	4	17	8	29	2.07	1	4	8	38	2.63

TASK INVENTORY DENTAL ASSISTANT	Frequency of Performance					Importance of Performance				
	Never	Seldom	Occass.	Freq.	Average	None	Slight	Mod.	Great	Average
Radiology (cont.)										
7. Place cone tip for long cone technique	4	16	10	28	2.07	1	4	8	40	2.65
8. Expose film	1	2	8	50	2.76	0	0	6	51	2.90
9. Process film	1	1	3	56	2.87	0	0	3	53	2.95
10. Mount films	0	3	5	55	2.83	0	1	5	54	2.89
11. Clean and prepare the developing tank	0	3	11	49	2.73	0	0	10	51	2.84
First Aid										
1. Treat patient for shock	1	42	10	8	1.41	1	5	7	43	2.65
2. Treat patient for hemorrhage	2	33	18	6	1.48	2	7	6	38	2.51
3. Treat patient for respiratory failure	2	39	12	5	1.35	2	7	5	39	2.53
4. Treat patient for foreign body in eye and throat	14	49	6	2	.95	15	10	11	25	1.76
5. Treat patient for minor burns	16	49	5	1	.88	7	15	11	18	1.79
6. Treat patient for minor wounds	14	49	6	2	.95	16	14	13	18	1.54
7. Treat patient for convulsions	12	48	9	2	1.02	12	6	10	33	2.05
8. Treat patient for cardiac arrest	16	48	4	3	.96	15	4	7	35	2.02
9. Treat patient for various injuries	16	37	7	2	.92	18	8	11	24	1.68
10. Treat a patient for poison	18	37	4	2	.84	19	10	9	23	1.59
Microbiology and Sterilization										
1. Use a microscope	15	35	10	1	.95	18	22	10	11	1.23
2. Make a culture media	13	37	7	4	1.04	16	15	15	15	1.48
3. Take culture	12	32	13	4	1.15	15	10	16	21	1.70
4. Clean and prepare the autoclave	4	3	9	45	2.56	6	0	7	48	2.59

TASK INVENTORY
DENTAL ASSISTANT

		Frequency of Performance					Importance of Performance				
		Never	Seldom	Occas.	Freq.	Average	None	Slight	Mod.	Great	Average
	Microbiology and Sterilization										
5.	Scrub and sterilize instruments for autoclave	3	3	3	56	2.72	5	0	6	55	2.72
6.	Wrap and pack instruments for autoclave	4	4	6	51	2.58	6	0	6	54	2.68
7.	Clean container, prepare chemicals for sterilization	0	4	9	52	2.74	3	1	4	57	2.74
8.	Prepare, sterilize instruments for chemical sterilization	3	2	4	56	2.74	5	1	3	56	2.69
9.	Prepare, sterilize instruments in hot oil	14	29	4	18	1.40	18	11	14	22	1.61
10.	Prepare, sterilize instruments in boiling water	13	34	6	12	1.26	13	20	8	24	1.66
11.	Prepare, sterilize instruments in dry heat and alcohol	9	17	8	31	1.94	12	7	10	36	2.08
12.	Prepare, sterilize instruments using ultrasonic	7	10	13	35	2.17	11	3	12	35	2.03
13.	Store surgery instruments	2	6	8	49	2.60	5	4	10	46	2.49
14.	Store operative instruments	0	2	4	59	2.88	0	2	7	56	2.83
	Dental and Lab Materials										
1.	Mix zinc oxide-eugenol for base and temporary	1	1	8	55	2.80	3	1	7	54	2.72
2.	Mix zinc phosphate for temporary; cementation; base fillings	1	3	10	51	2.71	4	1	6	54	2.69
3.	Mix amalgam for restorative purposes	3	1	2	59	2.80	5	0	2	58	2.74
4.	Mix silicate for restorative purposes	6	7	8	44	2.38	8	1	6	50	2.51
5.	Mix resin for restorative purposes	5	7	11	42	2.38	9	2	4	50	2.46
6.	Mix acrylic for restorative purposes	4	10	13	38	2.31	8	3	6	48	2.45
7.	Prepare gutta percha for temporary fillings	8	18	21	18	1.75	13	7	15	30	1.95
8.	Select and bead trays	7	21	22	15	1.69	11	7	16	31	2.03
9.	Mix alginate to take an impression	2	6	7	50	2.62	8	2	7	48	2.46
10.	Boxing an impression	4	21	12	28	1.98	8	8	15	34	2.15

TASK INVENTORY DENTAL ASSISTANT	Frequency of Performance					Importance of Performance				
	Never	Seldom	Occass.	Freq.	Average	None	Slight	Mod.	Great	Average
Dental and Lab Materials (cont.)										
11. Pour a plaster mold	3	8	11	43	2.45	6	2	9	48	2.52
12. Pour a stone model	6	5	10	44	2.42	8	2	6	49	2.48
13. Trim a stone and plaster model	7	8	9	41	2.29	8	5	8	44	2.35
14. Make a partial and complete impression tray (custom)	3	14	11	37	2.26	7	4	11	43	2.38
15. Mix metallic zinc oxide base for an impression	9	15	21	20	1.80	11	7	13	34	2.08
16. Mix rubber base and load syringe for impression	5	4	12	44	2.46	7	2	6	50	2.52
17. Mix silicones for impression	8	16	16	25	1.89	9	4	16	36	2.22
18. Prepare hydrocolloid for an impression	11	22	16	16	1.57	12	8	17	28	1.94
19. Prepare compounds for impressions	6	18	16	25	1.92	9	9	15	32	2.08
20. Construct a base plate	11	15	15	24	1.80	11	6	12	36	2.12
21. Construct wax rims	10	15	13	27	1.88	10	9	10	36	2.11
22. Articulate models	10	25	11	19	1.60	11	10	10	34	2.03
23. Carve wax pattern	11	27	17	10	1.40	15	12	16	26	1.88
24. Sprue and invest wax patterns	12	30	11	12	1.35	15	10	17	23	1.74
25. Cast wax pattern	14	33	10	8	1.18	16	14	15	20	1.60
26. Clean and polish wax pattern	13	30	12	10	1.29	16	12	15	22	1.66
27. Construct an acrylic temporary crown	10	24	12	18	1.57	12	7	15	31	2.00
Pharmocology										
1. Maintain a prescription record of drugs on patient chart	5	10	9	41	2.32	6	2	8	49	2.54
2. Dispensing of drugs to patient	10	26	13	16	1.54	13	7	11	34	2.02
3. Complete an inventory and store drugs	9	16	14	26	1.88	12	5	13	35	2.09
4. Write a prescription	12	28	9	15	1.40	14	11	8	31	1.89

TASK INVENTORY

DENTAL ASSISTANT

		Frequency of Performance					Importance of Performance				
		Never	Seldom	Occass.	Freq.	Average	None	Slight	Mod.	Great	Average
	Pharmocology										
5.	Keep legal records of narcotics	5	18	7	27	1.98	4	6	6	44	2.50
	Office Management										
1.	Fill out a get acquainted card and health history record	3	4	1	52	2.70	3	1	2	56	2.79
2.	Fill out a service rendered card	2	8	4	44	2.55	2	4	6	49	2.67
3.	Fill out an estimate card	2	15	13	28	2.16	1	8	8	39	2.52
4.	Fill out a contract card	3	17	8	30	2.12	3	7	8	43	2.90
5.	Make out statements	2	6	6	47	2.61	1	3	2	55	2.82
6.	Fill out daily ledger	2	6	3	47	2.64	1	1	1	56	2.90
7.	Fill out monthly summary	2	8	5	39	2.50	1	4	5	46	2.71
8.	Fill out yearly summary	2	14	8	37	2.61	1	5	6	42	2.65
9.	Fill out a monthly disbursement sheet	3	15	9	30	2.16	2	5	8	40	2.56
10.	Fill out a yearly disbursement sheet	4	14	10	28	2.11	3	7	8	39	2.46
11.	Fill out a petty cash record book	4	14	9	31	2.16	3	7	9	38	2.44
12.	Write out a check	2	13	4	36	2.35	1	4	4	46	2.73
13.	Make out a deposit slip and endorse checks	3	6	5	43	2.49	2	2	5	51	2.73
14.	Balance a check book	2	11	6	38	2.40	1	4	7	45	3.00
15.	Return a bad check to a patient	3	26	12	15	1.70	2	8	11	33	2.39
16.	Fill out an application for social security	3	28	9	14	1.63	2	11	11	31	2.29
17.	Fill out a personal tax exemption card	3	26	9	15	1.68	2	11	9	33	2.33
18.	Make out a personal tax return	5	21	11	18	1.76	4	8	11	32	2.29
19.	Schedule dental appointments										
20.	Use the teletrainer	9	26	7	10	1.35	8	10	11	22	1.92

TASK INVENTORY DENTAL ASSISTANT	Frequency of Performance					Importance of Performance				
	Never	Seldom	Occass.	Freq.	Average	None	Slight	Mod.	Great	Average
Office Management										
21. Set up a recall file system	3	5	14	42	2.48	5	1	9	48	2.59
22. Make out an age analysis sheet	16	31	11	7	1.15	19	18	9	17	2.86
23. Call a delinquent patient	7	6	25	26	2.09	10	4	14	34	2.16
24. Write a letter to a delinquent patient	5	12	23	22	2.00	10	6	15	31	2.08
25. Turn an account over for collection	7	11	28	17	1.87	8	5	18	31	2.16
26. Call supply house and place order	3	5	16	39	2.44	5	1	10	46	2.56
27. Receive and store supplies	2	0	10	51	2.75	5	1	10	46	2.56
28. Type a block style letter	10	9	14	30	2.02	11	7	10	34	2.08
29. Type a modified block style letter	9	13	18	23	1.87	11	7	15	30	2.01
30. Compose, type letter of request	7	10	16	30	2.10	10	5	13	35	2.16
31. Compose, type letter of appreciation	9	12	18	24	1.85	13	5	12	33	2.03
32. Compose, type letter of credit reference	8	19	16	20	1.85	12	8	12	29	1.95
33. Compose, type letter of ordering	10	12	19	22	1.84	13	7	13	30	1.95
34. Compose, type letter of recall	8	13	14	28	1.98	10	6	13	24	1.96
35. Type addresses on envelopes	6	11	11	35	2.19	9	7	7	40	2.24
36. Care and maintenance of typewriter	3	15	23	22	1.98	7	7	18	32	2.21
37. Change ribbon and paper of adding machines	6	13	22	22	1.92	9	5	18	32	2.14
38. Operate an adding machine	4	6	17	36	2.35	6	4	14	39	2.37
39. File patient records	1	1	9	52	2.78	3	2	8	50	2.67
40. File financial records	7	4	8	44	2.41	8	4	6	36	2.30
41. File patient X-rays	0	2	5	56	2.86	2	1	4	56	2.81
42. File study models	2	10	15	36	2.35	4	6	13	40	2.41

APPENDIX A

SURVEY MATERIALS

IML INSTRUCTIONAL MATERIALS LABORATORY
TRADE AND INDUSTRIAL EDUCATION
THE OHIO STATE UNIVERSITY, 1885 NEIL AVENUE, COLUMBUS, OHIO 43210 | TELEPHONE 614 · 422-5001

MEMORANDUM

TO: Ohio Dental Assistants

FROM: William L. Ashley, Research Associate, The Instructional Materials Laboratory

RE: Dental Assisting Occupational Analysis

DATE: October 12, 1973

The Vocational Instructional Materials Laboratory at the Ohio State University is presently involved in a project to develop new instructional materials and an occupational analysis in your field.

We are attempting at this time to develop and validate an accurate task inventory of the Dental Assisting occupation.

You have been identified as one of a select group who compose a source of valid occupational information concerning the task demands in the field of dental health. We therefore are soliciting your assistance in developing the task inventory so necessary for the design of sound vocational materials.

Your participation is vitally essential in this project and your generous assistance will be greatly appreciated. Please give us about fifteen minutes of your time to assist in this effort to improve and update instructional materials in your vocation.

Please use the self-addressed, stamped envelope enclosed to return the completed questionnaire within one week. Your prompt response will ensure the inclusion of your opinions in our study.

Thank you for your professional attitude and assistance.

/j

Instructions for Completing the Task Inventory

1. Read each of the task statements carefully.

2. Under the "Frequency of Performance" heading please check one of the three subcolumns which expresses your judgement of how often the task is performed compared to all other tasks.

3. Under the "Importance of Performance" heading please check one of the three subcolumns which expresses your judgment of how important the correct performance of the task is for job success compared to all other tasks.

4. At the bottom of any of the pages, write in and rate any tasks you perform which are not listed.

TASK INVENTORY

DENTAL ASSISTANT

TASK STATEMENT	Frequency of Performance			Importance of Performance		
	Seldom	Occasionally	Frequently	Slight	Moderate	Great
Chairside Assisting						
1. Open dental office						
2. Preparation of operatories						
3. Operate chair						
4. Operate dental unit						
5. Greet patient						
6. Seat patient						
7. Set up and assist for an examination						
8. Chart using the universal method						
9. Chart using Bosworth method						
10. Chart using Palmer's method						
11. Set up and assist with flouride treatment						
12. Set up and assist with prophylaxis						
13. Use dental floss						
14. Demonstrate toothbrushing						
15. Set up and assist with local anesthetic						
16. Retract tongue and cheeks						
17. Use and clean the oral evacuator						
18. Pass and receive instruments with one hand and with two hands						
19. Set up and assist with an amalgam procedure						
20. Set up and assist with the placement and removal of rubber dam						
21. Set up and assist with amalgam polish						
22. Set up and assist for a porcelain procedure						
23. Set up and assist with a porcelain polish						
24. Set up and assist with a gold foil procedure						
25. Set up and assist for an indirect gold inlay pup						
26. Set up and assist with cementing a gold inlay						
27. Clean operatory after a procedure						
28. Drain and lubricate the air compressor						
29. Take apart, clean and lubricate a conventional right angle handpiece						
30. Take apart, clean and lubricate a prophy angle						
31. Take apart, clean and lubricate a conventional straight handpiece						
32. Change the chuck in a high speed handpiece						
33. Clean and wax the dental unit						
34. Oil the dental engine						
35. Clean and oil the pullies on the engine arm						

TASK INVENTORY

DENTAL ASSISTANT

TASK STATEMENT	Frequency of Performance			Importance of Performance		
	Seldom	Occasionally	Frequently	Slight	Moderate	Great
36. Change the engine belt						
37. Arrange instruments in the operatory cabinets						
38. Color code instruments						
39. Change the bulb in the unit lamp						
40. Close the office						
Chairside Assisting, Specialties						
1. Set up for crown and bridge preparation						
2. Assist with a crown and bridge preparation						
3. Set up and assist with a bridge tryin						
4. Set up and assist for seating a bridge						
5. Set up and assist for the first denture procedure						
6. Set up and assist for the second denture procedure						
7. Set and assist for the third denture appointment						
8. Set up and assist for the fourth denture appointment						
9. Set up and assist for the fifth denture appointment						
10. Set up and assist for the first partial denture appointment						
11. Set up and assist for the second partial denture appointment						
12. Set up and assist for the third partial denture appointment						
13. Set up and assist for a periodontal scaling and subgingival currettage						
14. Set up for a gingivectomy						
15. Mix periodontal pack						
16. Prepare patient for surgery						
17. Prepare self for surgery						
18. Use surgical aspirator						
19. Assist with a gingivectomy						
20. Clean surgical aspirator						
21. Consult patient about proper diet						
22. Sharpen periodontal instruments						
23. Set up and assist with pack removal						
24. Set up for the removal of maxillary teeth						
25. Assist with the removal of the maxillary teeth						
26. Set up and assist with removal of mandibular teeth						
27. Prepare sutures						
28. Set up and assist with suture removal						
29. Set up and assist with treatment for dry socket						
30. Set up and assist with the removal of impacted teeth						
31. Set up and assist with an alveolectomy						

TASK INVENTORY DENTAL ASSISTANT	Frequency of Performance			Importance of Performance		
TASK STATEMENT	Seldom	Occasionally	Frequently	Slight	Moderate	Great
32. Set up and assist with tori removal						
33. Set up and assist with a biopsy						
34. Take a blood pressure						
35. Take an oral temperature						
36. Set up and assist with the diagnosis of an endodonticPatient						
37. Set up and assist with cavity preparation and reaming a root canal						
38. Set up and assist with irrigating cultures and disenfecting a root canal						
39. Set up and assist with canal abturation						
40. Set up and assist with a pulpotomy						
41. Set up and assist with an apicoectomy						
42. Set up and assist with a chrome crown procedure						
43. Set up for the fabrication of a space maintainer						
44. Assist with the fabrication of a space maintainer						
45. Set up and assist with the diagnosis of an orthodontic patient						
46. Prepare and trim orthodontic models						
47. Set up for the banding appointment						
48. Size orthodontic bands						
49. Weld or solder brackets to orthodontic bands						
50. Set up and assist with the removal of orthodontic bands						
51. Process an acrylic retainer						
52. Consult patient on do's and don't's while wearing orthodontic appliances						
Radiology						
1. Demonstrate how the component parts of an X-ray unit work						
2. Seat the patient						
3. Consult with patient on the importance of X-rays						
4. Place X-rays for short cone technique						
5. Place cone tip for the short cone technique						
6. Place X-ray for the long cone technique						
7. Place cone tip for long cone technique						
8. Expose film						
9. Process film						
10. Mount films						
11. Clean and prepare the developing tank						
First Aid						
1. Treat patient for shock						
2. Treat patient for hemorrage						
3. Treat patient for respiratory failure						

TASK INVENTORY DENTAL ASSISTANT	Frequency of Performance			Importance of Performance		
TASK STATEMENT	Seldom	Occasionally	Frequently	Slight	Moderate	Great
4. Treat patient for foreign body in eye and throat						
5. Treat patient for minor burns						
6. Treat patient for minor wounds						
7. Treat patient for convulsions						
8. Treat patient for cardiac arrest						
9. Treat patient for various injuries						
10. Treat a patient for poison						
Microbiology and Sterilization						
1. Use a microscope						
2. Make a culture media						
3. Take culture						
4. Clean and prepare the autoclave						
5. Scrub and sterilize instruments for autoclave						
6. Wrap and pack instruments for autoclave						
7. Clean container, prepare chemicals for sterilization						
8. Prepare, sterilize instruments for chemical sterilization						
9. Prepare, sterilize instruments in hot oil						
10. Prepare,sterilize instruments in boiling water						
11. Prepare, sterilize instruments in dry heat and alcohol						
12. Prepare, sterilize instruments using ultrasonic						
13. Store surgery instruments						
14. Store operative instruments						
Dental and Lab Materials						
1. Mix zinc oxide-eugenol for base and temporary						
2. Mix zinc phosphate for temporary; cementation; base fillings						
3. Mix amalgam for restorative purposes						
4. Mix silicate for restorative purposes						
5. Mix resin for restorative purposes						
6 Mix acrylic for restorative purposes						
7. Prepare gutta percha for temporary fillings						
8. Select and bead trays						
9. Mix alginate to take an impression						
10. Boxing an impression						
11. Pour a plaster mold						
12. Pour a stone model						
13. Trim a stone and plaster model						
14. Make a partial and complete impression tray (custom)						
15. Mix metallic zinc oxide base for an impression						
16. Mix rubber base and load syringe for impression						

TASK INVENTORY

DENTAL ASSISTANT

TASK STATEMENT	Frequency of Performance			Importance of Performance		
	Seldom	Occasionally	Frequently	Slight	Moderate	Great
17. Mix silicones for impression						
18. Prepare hydrocolloid for an impression						
19. Prepare compounds for impressions						
20. Construct a base plate						
21. Construct wax rims						
22. Articulate models						
23. Carve wax pattern						
24. Sprue and invest wax patterns						
25. Cast wax pattern						
26. Clean and polish wax pattern						
27. Construct an acrylic temporary crown						
Pharmocology						
1. Maintain a prescription record of drugs on patient chart						
2. Dispensing of drugs to patient						
3. Complete an inventory and store drugs						
4. Write a prescription						
5. Keep legal records of narcotics						
Office Management						
1. Fill out a get acquainted card and a health history record						
2. Fill out a service rendered card						
3. Fill out an estimate card						
4. Fill out a contract card						
5. Make out statements						
6. Fill out daily ledger						
7. Fill out monthly summary						
8. Fill out yearly summary						
9. Fill out a monthly disbursement sheet						
10. Fill out a yearly disbursement sheet						
11. Fill out a petty cash record book						
12. Write out a check						
13. Make out a deposit slip and endorse checks						
14. Balance a check book						
15. Return a bad check to a patient						
16. Fill out an application for social security						
17. Fill out a personal tax exemption card						
18. Make out a personal tax return						
19. Schedule dental appointments						
20. Use the teletrainer						

TASK INVENTORY DENTAL ASSISTANT	Frequency of Performance			Importance of Performance		
TASK STATEMENT	Seldom	Occasionally	Frequently	Slight	Moderate	Great
21. Set up a recall file system						
22. Make out an age analysis sheet						
23. Call a delinquent patient						
24. Write a letter to a delinquent patient						
25. Turn an account over for collection						
26. Call supply house and place order						
27. Receive and store supplies						
28. Type a block style letter						
29. Type a modified block style letter						
30. Compose, type letter of request						
31. Compose, type letter of appreciation						
32. Compose, type letter of credit reference						
33. Compose, type letter of ordering						
34. Compose, type letter of recall						
35. Type addresses on envelopes						
36. Care and maintenance of typewriter						
37. Change ribbon and paper of adding machines						
38. Operate an adding machine						
39. File patient records						
40. File financial records						
41. File patient X-rays						
42. File study models						

A SURVEY OF MEDICAL ASSISTANTS AND PHYSICIANS WHO EMPLOY MEDICAL ASSISTANTS

Conducted by I.M.L.

1975

INTRODUCTION

A survey of medical assistants and physicians who employ medical assistants was undertaken as part of the E.P.D.A. Instructional Systems Design Project. It was conducted from April through June 1975 by the project staff at the T & I Instructional Materials Lab. The main objective of the study was to provide a complete package of tested survey procedures and examples of finished products for the I.S.D. workshop. This was to include:

1. A complete training package on how to run a survey with a step by step description of survey activities
2. A report of this survey
3. Data analysis and conclusions based on the data collected

A second objective was to provide as much usable data as possible for planning and revising medical assisting vocational programs.

PROCEDURES

Survey Population

It was decided to gather survey information from both working medical assistants and physicians who employed medical assistants. Pre-survey contacts revealed that the most likely source of names for the medical assistant survey was the Ohio Medical Assistant Association. This organization held a state convention May 1 – 4, 1975. Ms. Joan Ray, the president-elect of O.M.A.A., supervised the distribution of approximately 90 survey packets at the convention. Another 50 are in the process of being distributed by Ms. Carrie Redd, the president of the Franklin County Medical Assistants Association. At this time we have 42 returned surveys. This type of sample provides "chunk" data. There is no way of knowing how representative the sample is of the total population of medical assistants. The background data allows us to describe the group that responded and provides a frame of reference for analyzing the task data.

The physicians were chosen by stratified proportional sampling from three medical directories. A ten percent sample was drawn from the total members listed in the directories of Cincinnati, Columbus, and Dayton. (See Table 1). At this time the number of returns from physicians makes it impossible to generalize the results of the data to the population. The data on physicians can only be reported by group totals with an accompanying group description as a frame of reference.

Table 1

Proportional Stratified Sample for Physicians' Survey

	Cincinnati	Columbus	Dayton	Totals
Population	1180	1040	640	2860
Sample drawn	118	104	64	286
Returned to date	25	33	9	67
Usable	14	16	6	36

Design of the Survey Packet

Once the population was defined, the survey packet was designed. Cover letters, instruction sheets, and tasks inventories were developed for both the medical assistants and physicians. Samples of all the survey materials are in Appendix A and Appendix B.

The task list used in both task inventories were taken from the occupational analysis on medical assisting developed during the 1974 Occupational Analysis workshop by Ms. Joan Ray, C.M.A. and Ms. Lucille Keir, C.M.A. The task statements were taken directly from the analysis with a few minor word changes and clustered under the following three duty headings: Clerical and Office, Clinical Procedures, and Laboratory Procedures and Diagnostic Tests.

Medical Assistant

The task inventory for the Medical Assistants asked three questions about each task: "How often do you perform each task?", "How critical is the correct performance of each task?", and "Where did you learn to perform each task?" Frequency was divided into four subcolumns labeled:

1. Several times a day
2. Once a day or several times a week
3. Once a week or several times a month
4. Once a month or less often

Criticality was divided into four subcolumns labeled:

1. Flexible
2. Average criticality
3. Above average criticality
4. Highly critical

Occupational training was divided into two subcolumns to indicate where each respondent had learned the task:

1. On the job training
2. Classroom training

All of these terms are explained on the instruction sheet with accompanying examples. Frequency and occupational training were self-explanatory. The criticality terms were defined as:

Flexible – Relatively unimportant whether the task is performed in a certain way or not

Average criticality – Deviation from the prescribed method could result in minor delays, patient discomfort, or loss resources

Above average criticality – Very little tolerance may be allowed without risk to worker or patient or loss of resources

Highly critical – Must be done within strict parameters to avoid irreversable loss of health or expensive equipment

The respondents were asked to mark only those tasks that they performed. These survey questions were selected to provide a wide range of usable information. They would indicate the tasks most common to medical assistants, the tasks most often performed by the greatest percentage of workers, the tasks for which correct performance is most critical, and the tasks traditionally learned on the job or in a classroom.

The background information sheet asked for information about the following: job title, years in present position, years in occupation, age, sex, type of agency where employed, medical specialities of the office, number of personnel in the office, county of employment, highest academic level completed, type of training received, certification or licenses held, and percentage of time they worked. This type of data was gathered to describe the personal, educational and training characteristics of persons who title themselves Medical Assistants as well as determine what kind of employment situation they work in.

Physicians

The survey instrument for the physicians contained the same 199 task statements and asked the following questions: "How critical is the correct performance of each task?" and "How proficient would you want a graduate of a two year medical assistant vocational program to be in performing the task?" Criticality was divided into the same four subcolumns with the same explanations given on the instruction sheet as was used with the Medical Assistant Survey. Proficiency was labeled in the following manner with these explanations:

1. Familiar with the task, but not skilled in performing it
2. Slightly skilled in performance, can perform under direct supervision, need review and practice
3. Moderately skilled in performance, can perform with partial supervision and brief practive
4. Highly skilled in performance, can perform without supervision, no practice needed.

The physicians were to mark only those tasks performed in their offices. These questions would indicate the tasks most often performed in various physicians' offices, the tasks where correct performance is most critical, and employer opinions about how proficient students should be in performing each task after vocational instruction.

The background information sheet for the physicians asked for the following information: Type of agency where they work, number of doctors in the office, medical specialities of the office, number of assistants the physicians supervise, number of assistants in the office by job title, type of training provided to medical assistants, county of practice and comments. The physicians were given the option of checking one or both of two statements: "I do not employ medical assistants" and "I do not with to respond to this survey." This was included so physicians who received surveys that were not applicable to their office situation could fill out the background information sheet and return it with some explanation for non-response. These physicians could be replaced on the mailing list.

Post-survey Procedures

A follow-up letter was mailed to non-responding physicians one week after the deadline for returning the surveys. A second follow-up mailing with an additional survey is currently being conducted. The surveys returned were checked off the coded mailing list and a letter of appreciation was mailed to all the physicians who participated in the study.

DATA ANALYSIS

The data presented in the section on "Report of the Data" is preliminary and incomplete. All the surveys have not been received so no conclusion should be drawn from the information presented. This preliminary data is presented as an illustration of the process of tabulating and analyzing the data. It is reported in the following manner: The first column contains the task number. The next five columns contain information from the Medical Assistant survey. Column one reports the percentage of workers who perform each task, column two reports the relative mean value for frequency, column three reports the relative mean value for criticality, column four reports the percentage of workers who learned to perform the task on the job, and column five reports the percentage of workers who learned the task in a classroom. The last three columns contain information from the physician survey. The first column contains the percentage of doctors who indicated the task was performed by medical assistants in their office, the second contains the relative mean value of criticality, and the third contains the relative mean value for proficiency.

Percentage of workers was calculated by dividing the number of people who indicated they performed the task by the total number of people who responded. The relative mean values were determined by the following of these procedures:

1. A numerical value was assigned to each response for each question.

Frequency	Criticality	Proficiency
0. Never		
1. Once a month . . .	1. Flexible	1. Familiar with the tasks
2. Once a week . . .	2. Average	2. Slightly skilled
3. Once a day . . .	3. Above Average	3. Moderately skilled
4. Several times a day	4. Highly Critical	4. Highly skilled

2. The value of each response column was multiplied times the number of responses reported in that column for one task.
3. The products obtained in step 2 were added.
4. The sum of the products was divided by the total number of responses

This procedure was repeated for each task for the questions of frequency, criticality, and proficiency. The results are reported in the section "Report of the Data" for both the Medical Assistant survey and the Physician survey. This allows for comparison between employee and employer data.

FINDINGS AND CONCLUSIONS

This study accomplished its first objective of producing a complete and tested instructional package on how to conduct a task survey. The package gives step by step procedures for constructing a task inventory, acquiring information about each task, and analyzing the data. The second objective is only partially met at this time. When all the data is returned and analyzed, useful information wll be available for revising or designing a course in medical assisting. Caution must be taken not to generalize the incomplete information presented here to the entire population.

When the study is complete, improvements made in the surveys' format and design will allow more accurate analysis of data then previous studies conducted by the I.M.L. This study contained both employee and employer information, gathered valuable background data, used specific questions with explanations and examples for each possible answer, and had a simple response system that allowed accurate tallying. Some problems encountered were lack of pre-survey data and the length and complexity of the task inventory. With no pre-survey data, there was a chance that the surveys would arrive at an office where it was not applicable and therefore be discarded. Some comments were also registered concerning the length of the survey.

In summary, the study accomplished its first objective fully. This study made several improvements over previous studies in the area of format and design. The second objective will have to be evaluated when the utility of the survey data is known.

REPORT OF THE DATA

PARTIAL DATA

DUTY: CLERICAL AND OFFICE

	Medical Assistants					Physicians		
Task No.	%	Freq.	Crit.	%OJT	%CT	%	Crit.	Prof.
1	76	2.12	1.66	100	0	88	1.72	2.10
2	90	2.86	2.67	78	22	88	2.32	2.48
3	90	3.17	2.79	71	29	94	2.78	3.18
4	90	3.33	2.62	83	17	97	2.65	2.91
5	76	1.67	2.07	64	36	91	2.03	2.03
6	81	2.43	2.24	62	38	88	2.06	2.35
7	78	2.69	2.72	57	43	88	2.58	2.90
8	95	2.93	2.44	78	22	91	2.47	2.76
9	98	3.74	2.51	73	27	97	2.65	2.85
10	95	3.81	2.48	71	29	94	3.03	3.09
11	95	3.31	3.16	83	17	97	3.47	3.35
12	90	3.14	2.68	71	29	91	2.65	2.90
13	90	2.76	2.80	100	0	86	3.13	2.97
14	83	2.05	2.88	69	31	77	2.59	2.86
15	74	.90	2.78	62	38	71	2.52	2.54
16	64	1.78	2.94	52	48	74	2.26	2.42
17	90	3.50	2.72	36	64	88	2.84	3.15
18	62	1.76	2.78	36	64	83	3.03	2.90
19	83	2.90	2.34	60	40	86	2.83	2.48
20	78	2.24	2.86	40	60	91	3.22	3.22
21	69	1.52	2.96	45	55	88	2.87	3.03
22	62	1.14	2.56	52	48	80	2.50	2.70

Task No.	%	Freq.	Crit.	%OJT	%CT	%	Crit.	Prof.
23	67	1.14	2.91	45	55	77	2.81	2.81
24	67	1.43	2.69	62	38	83	2.90	2.93
25	57	1.71	2.81	50	50	88	2.84	2.88
26	64	1.93	2.73	57	43	83	3.00	3.13
27	60	1.52	2.93	48	52	83	3.03	3.07
28	88	1.93	2.57	76	24	88	2.55	2.64
29	90	1.78	2.10	88	12	97	2.53	2.70
30	83	2.64	2.29	48	52	91	2.56	2.94
31	67	2.02	2.52	52	48	88	2.77	3.03
32	76	2.50	2.41	71	29	83	2.83	3.54
33	69	2.14	2.68	53	47	83	2.83	3.18
34	78	1.40	2.76	71	29	83	3.00	3.21
35	31	.52	2.36	48	52	68	3.00	2.91
36	86	1.62	2.28	78	22	91	2.66	2.75
37	83	2.55	2.69	84	12	86	2.66	3.00
38	78	1.93	2.70	73	27	80	3.21	3.18
39	74	2.21	2.66	90	10	80	3.11	3.21
40	78	1.31	2.85	92	8	88	2.87	3.13
41	60	1.86	2.73	88	12	68	2.71	2.74
42	86	2.24	2.59	94	6	74	2.85	2.85
43	76	1.60	2.69	81	19	77	2.15	2.71
44	67	1.19	2.92	67	33	71	2.88	3.68
45	45	.50	3.21	63	37	62	2.77	2.81
46	62	.98	3.23	68	32	66	2.91	3.04
47	48	.52	3.28	50	50	71	3.12	3.16

APPENDIX A

SAMPLE SURVEY MATERIALS FOR MEDICAL ASSISTANTS

IML INSTRUCTIONAL MATERIALS LABORATORY
TRADE AND INDUSTRIAL EDUCATION
THE OHIO STATE UNIVERSITY, 1885 NEIL AVENUE, COLUMBUS, OHIO 43210 | TELEPHONE 614 · 422-5001

MEMORANDUM

To: Ohio Medical Assistants

From: Faith L. Justice, Research Associate

The Vocational Instructional Materials Laboratory is conducting a study which we believe you will find interesting and helpful to your profession. We are involved in developing new instructional materials in the career field of Medical Assisting. The information from this study will be used to revise existing Medical Assisting programs in order to improve the quality of training programs being offered to students in your area.

We need your valuable input as an employed Medical Assistant to make sure the tasks taught to students in secondary vocational programs meet their needs. Please take a little of your time to complete this questionnaire and the background information sheet. The background information sheet is for research purposes only and will be kept confidential. The data will be reported by group only. The questionnaire asks for responses concerning three factors: frequency of performance, criticality of performance, and occupational training.

Frequency of performance asks you to indicate how often you perform each task. Criticality involves how precisely the worker must perform the task to meet acceptable standards. Occupational training asks you to indicate whether you learned to perform the task on the job or learned to perform the task during formal or classroom training.

Your participation is vitally essential to this project and your generous assistance is appreciated. Please use the self-addressed, stamped envelope to return the completed questionnaire by May 9, 1975. Your prompt response will ensure the inclusion of your opinions in our study. Thank you for your professional attitude and assistance.

SURVEY INSTRUCTIONS

This survey asks you three questions about each task. How often do you perform the task? How precise must your performance of a task be to meet acceptable standards? Where did you learn to perform the task? Read the following instructions and explanations carefully, to insure accurate answers to the survey.

1. Fill out the Background Information Sheet completely.

2. Read each task statement on the survey carefully. Respond only to those tasks which you perform in your current job position.

3. For each question circle the number in the appropriate column on the survey form according to the following codes. Frequency indicates how often you perform the task.

    1. Several times a day
    2. Once a day or several times a week
    3. Once a week or several times a month
    4. Once a month or less often

    Criticality indicates the tolerance level allowed in the performance of each task without significant loss of time, materials, equipment, patient comfort or safety.

    1. Flexible: Relatively unimportant whether the task is performed in a certain way or not. (Example: Read to patients*)
    2. Average Criticality: Deviation from prescribed methods could result in minor delays, patient discomfort, or loss of resources. (Example: Administer enema*)
    3. Above Average Criticality: Very little tolerance may be allowed without risk to worker or patient or loss of resources. (Example: Maintain isolation technique*)
    4. Highly Critical: Must be done within strict parameters to avoid irreversable loss of health or expensive equipment. (Example: Administer intravenous medications*)

    Occupational Training indicates where you learned to perform the task.

    1. On the job training
    2. Classroom training

4. In the spaces provided at the end of each section, write in and rate any task you perform which are not listed.

*Examples taken from results of A Study of Nursing Occupations conducted by U.C.L.A. in 1972.

5354

BACKGROUND INFORMATION SHEET

THIS IS A CONFIDENTIAL DOCUMENT USED FOR RESEARCH PURPOSES ONLY. INFORMATION WILL BE REPORTED BY GROUP ONLY.

Please complete this Information Sheet and return it with the survey form. The answers to these questions are of importance as we try to evaluate responses from a large number of people across Ohio where requirements for specific jobs may be very different.

1. Your Job title: ___ Certified Medical Assistant ___ Medical Assist. – Clinical
___ Medical Assistant – Administrative ___ Registered Nurse
___ Licensed Practical Nurse Medical Technologist
___ Other (specify) ________________________________

2. Years in present position__________

3. Years in occupation____________

4. Age______________________

5. Sex (circle) M F

6. Please check type of agency where you are employed
Single Practice____ Clinic _____
Group Practice____ Hospital____

7. Medical specialities of office______________________________

8. Number of personnel in office: Doctors_____ Para-professional Personnel_____

9. County of employment__________________

10 Highest academic level completed (circle one):
10.1 Less than high school diploma
10.2 High school diploma or equivalent
10.3 Some college (no degree)
10.4 Associate Degree
10.5 Bachelors (Major__________)
10.6 Mastors (Major__________)
10.7 Other (specify)__________

11. Type of training you have received. Circle code numbers and include number of months and the subject studied

	Months	Area or Subject
11.1 On the job training	_____	__________
11.2 High school vocational program	_____	__________
11.3 Post-secondary	_____	__________
11.4 Other (specify)__________	_____	__________

12. Certificates, licenses or registration held (specify):____________________

13. Are you employed full time in your present position? (circle) YES NO
If part time, indicate percent of full time. Percent__________________

Read each task statement carefully.
Circle the appropriate number under each heading for each task you perform.
Write in the blank spaces, at the end of each section, other tasks you perform that are not listed in the inventory.

	Frequency				Criticality				Location of Training	
	Several times a day	Once a day or several times a week	Once a week or several times a month	Once a month or less	Flexible	Average	Above average	Highly critical	On the job training	Classroom training
Clerical and Office										
1. Prepare reception room for patients	1	2	3	4	1	2	3	4	1	2
2. Sort, open and route mail	1	2	3	4	1	2	3	4	1	2
3. Pull or file patients' medical records	1	2	3	4	1	2	3	4	1	2
4. Receive patients	1	2	3	4	1	2	3	4	1	2
5. Manage children accompanying patients	1	2	3	4	1	2	3	4	1	2
6. Screen non-patient visitors	1	2	3	4	1	2	3	4	1	2
7. Complete registration form and health history record	1	2	3	4	1	2	3	4	1	2
8. Explain to scheduled patient unexpected delay	1	2	3	4	1	2	3	4	1	2
9. Place telephone calls	1	2	3	4	1	2	3	4	1	2
10. Answer telephone calls	1	2	3	4	1	2	3	4	1	2
11. Respond to emergency telephone calls	1	2	3	4	1	2	3	4	1	2
12. Schedule appointments for patients	1	2	3	4	1	2	3	4	1	2
13. Make arrangements for patient admission to hospital	1	2	3	4	1	2	3	4	1	2
14. Arrange meetings and/or conferences	1	2	3	4	1	2	3	4	1	2

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	Frequency				Criticality				Location of Training	
	Several times a day	Once a day or several times a week	Once a week or several times a month	Once a month or less	Flexible	Average	Above average	Highly critical	On the job training	Classroom training
15. Arrange travel accomodations	1	2	3	4	1	2	3	4	1	2
16. Prepare schedule for physicians of hospital patients	1	2	3	4	1	2	3	4	1	2
17. Operate a typewriter	1	2	3	4	1	2	3	4	1	2
18. Transcribe from a dictating machine	1	2	3	4	1	2	3	4	1	2
19. Operate copy equipment	1	2	3	4	1	2	3	4	1	2
20. Compose and type business letter	1	2	3	4	1	2	3	4	1	2
21. Type a consultation letter	1	2	3	4	1	2	3	4	1	2
22. Compose and type a recall letter to patient	1	2	3	4	1	2	3	4	1	2
23. Compose and type collection letter	1	2	3	4	1	2	3	4	1	2
24. Complete workmen's compensation forms	1	2	3	4	1	2	3	4	1	2
25. Complete commercial health forms	1	2	3	4	1	2	3	4	1	2
26. Complete Medicare Part B forms	1	2	3	4	1	2	3	4	1	2
27. Complete public assistance billing forms	1	2	3	4	1	2	3	4	1	2
28. Inventory office supplies	1	2	3	4	1	2	3	4	1	2

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	Frequency				Criticality				Location of Training	
	Several times a day	Once a day or several times a week	Once a week or several times a month	Once a month or less	Flexible	Average	Above average	Highly critical	On the job training	Classroom training
29. Order and receive office supplies	1	2	3	4	1	2	3	4	1	2
30. Operate an adding machine	1	2	3	4	1	2	3	4	1	2
31. Fill out and process a day sheet	1	2	3	4	1	2	3	4	1	2
32. Compete a charge slip	1	2	3	4	1	2	3	4	1	2
33. Complete an account card	1	2	3	4	1	2	3	4	1	2
34. Prepare statements	1	2	3	4	1	2	3	4	1	2
35. Prepare information for a commercial billing agency	1	2	3	4	1	2	3	4	1	2
36. Investigate returned mail	1	2	3	4	1	2	3	4	1	2
37. Accept payment and post ledger cards	1	2	3	4	1	2	3	4	1	2
38. Complete a bank deposit slip	1	2	3	4	1	2	3	4	1	2
39. Handle credit arrangements with patients	1	2	3	4	1	2	3	4	1	2
40. Contact deliquent patient	1	2	3	4	1	2	3	4	1	2
41. Extract billing information from doctor's notes	1	2	3	4	1	2	3	4	1	2
42. Obtain and record patient billing information for hospital visits by physician	1	2	3	4	1	2	3	4	1	2

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	Frequency				Criticality				Location of Training	
	Several times a day	Once a day or several times a week	Once a week or several times a month	Once a month or less	Flexible	Average	Above average	Highly critical	On the job training	Classroom training
43. Establish and control petty cash fund	1	2	3	4	1	2	3	4	1	2
44. Prepare and maintain employee's payroll records	1	2	3	4	1	2	3	4	1	2
45. Complete employee related tax forms	1	2	3	4	1	2	3	4	1	2
46. Disburse professional expenses	1	2	3	4	1	2	3	4	1	2
47. Reconcile a checkbook with bank statement monthly	1	2	3	4	1	2	3	4	1	2
48. Complete monthly disbursement sheet and/or ledger	1	2	3	4	1	2	3	4	1	2
49. Complete summary sheets of earnings and income	1	2	3	4	1	2	3	4	1	2
50. Assemble information for tax returns	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2

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	Frequency				Criticality				Location of Training	
	Several times a day	Once a day or several times a week	Once a week or several times a month	Once a month or less	Flexible	Average	Above average	Highly critical	On the job training	Classroom training
Clinical Procedures										
51. Sterilize instruments with boiling water	1	2	3	4	1	2	3	4	1	2
52. Sterilize instruments with chemicals	1	2	3	4	1	2	3	4	1	2
53. Clean chemical sterilizing equipment	1	2	3	4	1	2	3	4	1	2
54. Clean autoclave	1	2	3	4	1	2	3	4	1	2
55. Prepare and autoclave gauze sponges	1	2	3	4	1	2	3	4	1	2
56. Fold and autoclave towels	1	2	3	4	1	2	3	4	1	2
57. Wash and wrap surgical gloves	1	2	3	4	1	2	3	4	1	2
58. Autoclave surgical gloves	1	2	3	4	1	2	3	4	1	2
59. Prepare and wrap instruments	1	2	3	4	1	2	3	4	1	2
60. Autoclave instruments	1	2	3	4	1	2	3	4	1	2
61. Prepare and wrap glass syringes and needles	1	2	3	4	1	2	3	4	1	2
62. Autoclave syringes and needles	1	2	3	4	1	2	3	4	1	2
63. Determine and chart height of patient	1	2	3	4	1	2	3	4	1	2
64. Determine and chart weight of patient	1	2	3	4	1	2	3	4	1	2

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	Frequency				Criticality				Location of Training	
	Several times a day	Once a day or several times a week	Once a week or several times a month	Once a month or less	Flexible	Average	Above average	Highly critical	On the job training	Classroom training
65. Take and chart a temperature	1	2	3	4	1	2	3	4	1	2
66. Take and chart a pulse	1	2	3	4	1	2	3	4	1	2
67. Count and chart respiration of patient	1	2	3	4	1	2	3	4	1	2
68. Take and chart a blood pressure	1	2	3	4	1	2	3	4	1	2
69. Determine color vision with Ishihara charts	1	2	3	4	1	2	3	4	1	2
70. Measure patient's vision with Snellen chart and record findings	1	2	3	4	1	2	3	4	1	2
71. Apply a circular bandage	1	2	3	4	1	2	3	4	1	2
72. Apply a finger splint	1	2	3	4	1	2	3	4	1	2
73. Apply a figure-of-eight bandage	1	2	3	4	1	2	3	4	1	2
74. Apply a recurrent-turn bandage	1	2	3	4	1	2	3	4	1	2
75. Apply a spiral reverse flip bandage	1	2	3	4	1	2	3	4	1	2
76. Apply elastic bandage	1	2	3	4	1	2	3	4	1	2
77. Apply an arm splint	1	2	3	4	1	2	3	4	1	2
78. Apply an arm sling	1	2	3	4	1	2	3	4	1	2

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	Frequency				Criticality				Location of Training	
	Several times a day	Once a day or several times a week	Once a week or several times a month	Once a month or less	Flexible	Average	Above average	Highly critical	On the job training	Classroom training
79. Apply butterfly bandage	1	2	3	4	1	2	3	4	1	2
80. Apply tubular bandage	1	2	3	4	1	2	3	4	1	2
81. Apply sterile adhesive dressing	1	2	3	4	1	2	3	4	1	2
82. Apply a sterile dressing	1	2	3	4	1	2	3	4	1	2
83. Remove a contaminated dressing	1	2	3	4	1	2	3	4	1	2
84. Apply a pressure bandage to a burn	1	2	3	4	1	2	3	4	1	2
85. Position and drape patient for Trendelenburg	1	2	3	4	1	2	3	4	1	2
86. Position and drape patient for Knee Chest	1	2	3	4	1	2	3	4	1	2
87. Position and drape patient for Semi Fowlers	1	2	3	4	1	2	3	4	1	2
88. Position and drape patient for Sims and Lateral	1	2	3	4	1	2	3	4	1	2
89. Position and drape for Lithotomy position	1	2	3	4	1	2	3	4	1	2
90. Prepare a general physical examination tray	1	2	3	4	1	2	3	4	1	2
91. Prepare rectal tray	1	2	3	4	1	2	3	4	1	2
92. Assist with rectal examination	1	2	3	4	1	2	3	4	1	2

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	Frequency				Criticality				Location of Training	
	Several times a day	Once a day or several times a week	Once a week or several times a month	Once a month or less	Flexible	Average	Above average	Highly critical	On the job training	Classroom training
93. Set up ear, nose, and throat tray	1	2	3	4	1	2	3	4	1	2
94. Prepare gynecological tray with Pap Smear set-up	1	2	3	4	1	2	3	4	1	2
95. Assist with pelvic examination and Pap Test	1	2	3	4	1	2	3	4	1	2
96. Assist patient in sitting up	1	2	3	4	1	2	3	4	1	2
97. Assist patient from wheel chair to examining table	1	2	3	4	1	2	3	4	1	2
98. Restrain an infant or child	1	2	3	4	1	2	3	4	1	2
99. Assist with eye instillation	1	2	3	4	1	2	3	4	1	2
100. Assist with eye irrigation	1	2	3	4	1	2	3	4	1	2
101. Assist with ear instillation	1	2	3	4	1	2	3	4	1	2
102. Assist with ear irrigation	1	2	3	4	1	2	3	4	1	2
103. Assist a fainting patient	1	2	3	4	1	2	3	4	1	2
104. Treat patient for shock	1	2	3	4	1	2	3	4	1	2
105. Administer first aid for diabetic coma	1	2	3	4	1	2	3	4	1	2
106. Administer first aid for insulin shock	1	2	3	4	1	2	3	4	1	2

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	Frequency				Criticality				Location of Training	
	Several times a day	Once a day or several times a week	Once a week or several times a month	Once a month or less	Flexible	Average	Above average	Highly critical	On the job training	Classroom training
107. Administer first aid for poisoning by mouth	1	2	3	4	1	2	3	4	1	2
108. Administer first aid for seizures	1	2	3	4	1	2	3	4	1	2
109. Administer first aid for burn patients (heat and electrical)	1	2	3	4	1	2	3	4	1	2
110. Administer first aid for chemical burn patients	1	2	3	4	1	2	3	4	1	2
111. Administer first aid for stroke victims	1	2	3	4	1	2	3	4	1	2
112. Administer first aid for animal bites	1	2	3	4	1	2	3	4	1	2
113. Control bleeding with direct pressure	1	2	3	4	1	2	3	4	1	2
114. Control bleeding by pressure to supplying vessel	1	2	3	4	1	2	3	4	1	2
115. Apply tourniquet for hemorrhage	1	2	3	4	1	2	3	4	1	2
116. Assist physician with suspected coronary or myocardial infarction victim	1	2	3	4	1	2	3	4	1	2
117. Give mouth to mouth resuscitation	1	2	3	4	1	2	3	4	1	2
118. Give back pressure-arm lift resuscitation	1	2	3	4	1	2	3	4	1	2
119. Apply external cardiac massage	1	2	3	4	1	2	3	4	1	2
120. Complete a surgical scrub	1	2	3	4	1	2	3	4	1	2

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		Frequency				Criticality				Location of Training	
		Several times a day	Once a day or several times a week	Once a week or several times a month	Once a month or less	Flexible	Average	Above average	Highly critical	On the job training	Classroom training
121.	Don sterile gloves	1	2	3	4	1	2	3	4	1	2
122.	Assist in putting on sterile gloves	1	2	3	4	1	2	3	4	1	2
123.	Prepare skin for surgery	1	2	3	4	1	2	3	4	1	2
124.	Set up for general surgery	1	2	3	4	1	2	3	4	1	2
125.	Assist with minor surgery	1	2	3	4	1	2	3	4	1	2
126.	Assist in obtaining biopsy	1	2	3	4	1	2	3	4	1	2
127.	Assist with suture removal	1	2	3	4	1	2	3	4	1	2
128.	Assist with electrosurgery	1	2	3	4	1	2	3	4	1	2
129.	Assist physician in performing Scratch Test	1	2	3	4	1	2	3	4	1	2
130.	Assist physician in performing Patch Test	1	2	3	4	1	2	3	4	1	2
131.	Administer oral medication	1	2	3	4	1	2	3	4	1	2
132.	Withdraw solution for injection	1	2	3	4	1	2	3	4	1	2
133.	Prepare needle-cartridge unit injection	1	2	3	4	1	2	3	4	1	2
134.	Administer subcutaneous injection	1	2	3	4	1	2	3	4	1	2

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		Frequency				Criticality				Location of Training	
		Several times a day	Once a day or several times a week	Once a week or several times a month	Once a month or less	Flexible	Average	Above average	Highly critical	On the job training	Classroom training
135.	Administer intradermal injection	1	2	3	4	1	2	3	4	1	2
136.	Administer intramuscular injection	1	2	3	4	1	2	3	4	1	2
137.	Assist with cast application	1	2	3	4	1	2	3	4	1	2
138.	Assist with removal of cast	1	2	3	4	1	2	3	4	1	2
139.	Instruct patient on use and care of crutches	1	2	3	4	1	2	3	4	1	2
140.	Explain special diet to patient	1	2	3	4	1	2	3	4	1	2
141.	Instruct patient regarding proper preparation for diagnostic tests	1	2	3	4	1	2	3	4	1	2
142.	Assist in use of Oscillometer	1	2	3	4	1	2	3	4	1	2
143.	Perform Hearing Acuity Tests	1	2	3	4	1	2	3	4	1	2
144.	Assist with Heat Lamp treatment (infrared)	1	2	3	4	1	2	3	4	1	2
145.	Assist with Diathermy treatment	1	2	3	4	1	2	3	4	1	2
146.	Assist with Ultra-Sound treatment	1	2	3	4	1	2	3	4	1	2
147.	Administer oxygen to patient	1	2	3	4	1	2	3	4	1	2
148.	Administer Intermittent Positive Pressure Inhalation Therapy	1	2	3	4	1	2	3	4	1	2

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		Frequency				Criticality				Location of Training	
		Several times a day	Once a day or several times a week	Once a week or several times a month	Once a month or less	Flexible	Average	Above average	Highly critical	On the job training	Classroom training
149.	Utilize publications providing list of approved drugs	1	2	3	4	1	2	3	4	1	2
150.	Interpret prescription	1	2	3	4	1	2	3	4	1	2
151.	Chart prescriptions	1	2	3	4	1	2	3	4	1	2
152.	Prepare and replenish supplies in physician's bag	1	2	3	4	1	2	3	4	1	2
153.	Organize and maintain examination rooms	1	2	3	4	1	2	3	4	1	2
154.	Receive and organize medication samples	1	2	3	4	1	2	3	4	1	2
155.	Inventory medication and medical supplies	1	2	3	4	1	2	3	4	1	2
		1	2	3	4	1	2	3	4	1	2
		1	2	3	4	1	2	3	4	1	2
		1	2	3	4	1	2	3	4	1	2
		1	2	3	4	1	2	3	4	1	2
		1	2	3	4	1	2	3	4	1	2
		1	2	3	4	1	2	3	4	1	2
		1	2	3	4	1	2	3	4	1	2

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		Frequency				Criticality				Location of Training	
		Several times a day	Once a day or several times a week	Once a week or several times a month	Once a month or less	Flexible	Average	Above average	Highly critical	On the job training	Classroom training
	Laboratory Procedures and Diagnostic Tests										
156.	Perform electrocardiogram	1	2	3	4	1	2	3	4	1	2
157.	Adjust high and low power objects of microscope	1	2	3	4	1	2	3	4	1	2
158.	Use oil immersion lens of microscope	1	2	3	4	1	2	3	4	1	2
159.	Perform physical examination of urine	1	2	3	4	1	2	3	4	1	2
160.	Determine the pH of urine	1	2	3	4	1	2	3	4	1	2
161.	Perform specific gravity (S/G) on urine specimen	1	2	3	4	1	2	3	4	1	2
162.	Determine proteins in urine	1	2	3	4	1	2	3	4	1	2
163.	Determine glucose in urine	1	2	3	4	1	2	3	4	1	2
164.	Determine presence of ketone bodies in urine	1	2	3	4	1	2	3	4	1	2
165.	Perform test for bile and urobilinogen in urine	1	2	3	4	1	2	3	4	1	2
166.	Perform test for blood in urine and feces	1	2	3	4	1	2	3	4	1	2
167.	Operate centrifuge	1	2	3	4	1	2	3	4	1	2
168.	Perform microscopic exam of urine specimen	1	2	3	4	1	2	3	4	1	2
169.	Perform a skin puncture	1	2	3	4	1	2	3	4	1	2

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		Frequency				Criticality				Location of Training	
		Several times a day	Once a day or several times a week	Once a week or several times a month	Once a month or less	Flexible	Average	Above average	Highly critical	On the job training	Classroom training
170.	Obtain blood specimen from vein with syringe and needle	1	2	3	4	1	2	3	4	1	2
171.	Obtain blood specimen from vein with Vacutainer set-up	1	2	3	4	1	2	3	4	1	2
172.	Complete micro-hematocrit	1	2	3	4	1	2	3	4	1	2
173.	Perform red blood cell count using hemacytometer	1	2	3	4	1	2	3	4	1	2
174.	Perform white blood cell count using hemacytometer	1	2	3	4	1	2	3	4	1	2
175.	Use Unopette for white blood cell count using hemacytometer	1	2	3	4	1	2	3	4	1	2
176.	Perform hemoglobin determination with hemoglobinameter	1	2	3	4	1	2	3	4	1	2
177.	Perform hemoglobin determine by Sohli-Adams Method	1	2	3	4	1	2	3	4	1	2
178.	Perform hemoglobin by Cyanmethoglobin Method	1	2	3	4	1	2	3	4	1	2
179.	Prepare blood smear	1	2	3	4	1	2	3	4	1	2
180.	Stain blood smear	1	2	3	4	1	2	3	4	1	2
181.	Examine stained blood smear	1	2	3	4	1	2	3	4	1	2
182.	Complete an erythrocyte sedimentation rate by the Wintrobe–Landsberg Method	1	2	3	4	1	2	3	4	1	2
183.	Complete an erythrocyte sedimentation rate by the Westergren Method	1	2	3	4	1	2	3	4	1	2

Read each task statement carefully.
Circle the appropriate number under each heading for each task you perform.
Write in the blank spaces, at the end of each section, other tasks you perform that are not listed in the inventory.

		Frequency				Criticality				Location of Training	
		Several times a day	Once a day or several times a week	Once a week or several times a month	Once a month or less	Flexible	Average	Above average	Highly critical	On the job training	Classroom training
184.	Use colorimetric strip test for blood glucose	1	2	3	4	1	2	3	4	1	2
185.	Complete a bleeding time (Duke's Method)	1	2	3	4	1	2	3	4	1	2
186.	Complete coagulation time (Capillary Glass Method)	1	2	3	4	1	2	3	4	1	2
187.	Type a blood specimen (Landsteiner's Classification)	1	2	3	4	1	2	3	4	1	2
188.	Complete an Rh determination (screening only)	1	2	3	4	1	2	3	4	1	2
189.	Perform glucose determination by Folin Wu Method	1	2	3	4	1	2	3	4	1	2
190.	Prepare a bacterial smear	1	2	3	4	1	2	3	4	1	2
191.	Complete a gram stain	1	2	3	4	1	2	3	4	1	2
192.	Prepare a unit mount for parasitology study	1	2	3	4	1	2	3	4	1	2
193.	Innoculate an Agar plate	1	2	3	4	1	2	3	4	1	2
194.	Position patient for X-ray examination	1	2	3	4	1	2	3	4	1	2
195.	Load X-ray film in cassette	1	2	3	4	1	2	3	4	1	2
196.	Expose X-rays	1	2	3	4	1	2	3	4	1	2
197.	Process X-ray film	1	2	3	4	1	2	3	4	1	2

Read each task statement carefully.
Circle the appropriate number under each heading for each task you perform.
Write in the blank spaces, at the end of each section, other tasks you perform that are not listed in the inventory.

	Frequency				Criticality				Location of Training	
	Several times a day	Once a day or several times a week	Once a week or several times a month	Once a month or less	Flexible	Average	Above average	Highly critical	On the job training	Classroom training
198. Perform pulmonary function studies	1	2	3	4	1	2	3	4	1	2
199. Inventory and order laboratory supplies and equipment	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2
	1	2	3	4	1	2	3	4	1	2

APPENDIX B

SAMPLE SURVEY MATERIALS FOR PHYSICIANS

IML INSTRUCTIONAL MATERIALS LABORATORY
TRADE AND INDUSTRIAL EDUCATION
THE OHIO STATE UNIVERSITY, 1885 NEIL AVENUE, COLUMBUS, OHIO 43210 | TELEPHONE 614 · 422-5001

Dear Dr.

The Vocational Instructional Materials Laboratory is conducting a study that we believe you will find helpful to your profession. We are involved in developing new instructional materials in the career field of Medical Assisting. The information from this study will be used to revise existing Medical Assisting programs in order to improve the quality of training programs being offered to students in your area.

We need your valuable input as a doctor-employer to make sure the skills taught to students in secondary vocational programs will meet the needs of their employers. Please take a little of your time and complete this questionnaire and the brief background information sheet. The background information sheet is designed to tell us what type of assistants are employed in various types of offices in various areas. The questionnaire asks you to respond to two questions for every task performed in your office. The first question asks how precisely a task must be performed to meet established standards. The second question asks how proficient you would want a recent graduate from a secondary vocational program in medical assisting to be in performing each task.

Your participation is vitally essential to this project and your generous assistance is appreciated. Please use the self-addressed, stamped envelope to return the completed questionnaire by May 16, 1975. Your prompt response will insure the inclusion of your opinions in our study. Thank you for your professional attitude and assistance.

Sincerely,

Faith L. Justice

Faith L. Justice
Research Associate

SURVEY INSTRUCTIONS

We are concerned with designing curriculum to provide graduates from vocational programs with adequate entry-level skills in the career field of Medical Assisting. You can help us identify those skills by reading the explanations and following the instructions given below. Please make any written suggestions you feel will help us in our effort.

1. Fill out the Background Information Sheet completely.

2. Read each task statement carefully. Respond only to those tasks which are performed in your office by circling the appropriate number according to the following codes:

   Criticality indicates the tolerance level allowed in the performance of each task without significant loss of time, materials, equipment, patient comfort or safety.

   1. Flexible: Relatively unimportant whether the task is performed in a certain way or not. (Example: Read to a patient*)
   2. Average Criticality: Deviation from prescribed methods could result in minor delays, patient discomfort, or loss of resources. (Example: Administer enema*)
   3. Above Average Criticality: Very little tolerance may be allowed without risk to worker or patient or loss of resources. (Example: Maintain isolation technique*)
   4. Highly Critical: Must be done within strict parameters to avoid irreversable loss of health or expensive equipment. (Example: Administer intravenous medications*)

   Proficiency indicates how proficient a recent graduate of a secondary vocational program should be in performing each task.

   1. Familiar with the task, but not skilled in performing it.
   2. Slightly skilled in performance, can perform under direct supervision, need review and practice.
   3. Moderately skilled in performance, can perform with partial supervision and brief practice.
   4. Highly skilled in performance, can perform without supervision, no practice needed.

3. In the spaces provided at the end of each section, write in and rate any tasks that are performed in your office and are not listed.

*Example taken from results of A Study of Nursing Occupations conducted by U.C.L.A. in 1972.

BACKGROUND INFORMATION SHEET

THIS INFORMATION IS CONFIDENTIAL AND WILL BE USED FOR RESEARCH PURPOSES ONLY. THE INFORMATION WILL BE REPORTED BY GROUP ONLY.

1. Check primary type of agency where you practice:

____Single Practice
____Group Practice
____Clinic
____Hospital

2. Number of doctors in the office__________

3. Medical specialities of office____

4. Number of assistants you supervise_________

5. Number of assistants in the office by job title:

____Certified Medical Assistant
____Medical Assistant–Clinical
____Medical Assistant–Administrative
____Other (specify)____
____Registered Nurse
____Licensed Practical Nurse
____Medical Technologist

6. Do you provide on the job training for untrained Medical Assistants?
Yes____ No____

7. County of practice____

8. I do not employ medical assistants_____________________________

9. I do not wish to respond to this survey________________________

10. Comments:

IML INSTRUCTIONAL MATERIALS LABORATORY
TRADE AND INDUSTRIAL EDUCATION
THE OHIO STATE UNIVERSITY, 1885 NEIL AVENUE, COLUMBUS, OHIO 43210 | TELEPHONE 614 · 422-5001

May 19, 1975

Dear Dr.

I recently mailed to you a survey concerning tasks done by Medical Assistants. I asked that it be returned by May 16, 1975. If your survey is in the mail, thank you very much for your professional assistance. If you have not returned the survey, please fill it out and return it. If you do not employ assistants or do not wish to respond, please take two minutes of your time to fill out the brief background information sheet, check the appropriate space and return the survey by May 23, 1975.

As I mentioned in the cover letter, this survey is part of a federally funded project. The information will be used in a state-wide curriculum development effort in the vocational training of Medical Assistants. The results of this study will be reported to the Ohio Medical Assistants Association and each county medical society that provided us with a directory. If you have any questions as to how this information will be used, please feel free to write or call me at the above address.

Thank you again for your valuable assistance in helping to make this study accurate and representative of the medical profession's opinion.

Sincerely,

Faith L. Justice

Faith L. Justice
Research Associate

TASK SURVEY STRATEGY EVALUATION

TASK SURVEY STRATEGY EVALUATION

PERFORMANCE OBJECTIVE

After reading the modules on task survey techniques and the two case studies presented, the workshop participants will discuss the following questions in a group and produce written feedback about each question.

1. Compare the data presented in both studies. How could you use this data in course development?

2. What limitations and advantages should you be aware of in each study? (i.e., characteristics of population sampled, sampling methods, background information, survey format, questions asked, etc.)

3. Assuming the data was valid, what decisions could you make based on this data and strategies suggested for analyzing the data?

4. Do you think the task survey process is a valid means of obtaining data for curriculum development? Why or why not?

5. Do you think task surveys can be implemented effectively at the local level? · Why?

6. Would you implement a task survey process in your school systems? Who would be responsible for it? What would be its purpose?

7. If you had a task survey process in your school systems, what kinds of data would be most useful to you in the curriculum development process? What kinds of questions would you ask? Who would you survey?